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## Affected Environment, Environmental Consequences, and Mitigation

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This chapter describes the existing environmental conditions within the Study Area that will potentially be affected by the Proposed Action. See **Map 1.2-1** for a map of the overall Project Area and the Study Area. See **Map 1.2-2** for a map of commonly referenced key features within the Project Area. The Study Area was defined to evaluate potential effects to resources that may result from construction of the Proposed Action. The Study Area includes the proposed limits of disturbance, as follows:

- The Merchants Row and Main Street bridges and their roadway approaches;
- A temporary access road for both construction equipment access and for alternate access to the Battell Block building, located just west of the Merchants Row Bridge;
- A temporary access road to the proposed location of a stormwater outfall north of the Otter Creek Falls; and
- Roughly 3,550 linear feet of the VWRC track from the Otter Creek Truss Bridge No. 239 at the south to approximately the location of the Elm Street overpass to the north.

In addition to the limits of disturbance, other areas were assessed for various resources that may be affected by construction of the Proposed Action for the Project. The limits of these areas vary by resource. For example, the Study Area for

the wetlands evaluation does not include developed portions of the Study Area but is limited to areas those portions of the Study Area where conditions may support the presence of wetland features.

See **Map 1.2-1** for a map showing both the overall Project Area and the Study Area limits.

This Chapter also describes the environmental consequences of the Proposed Action. Although the No Action Alternative does not fulfill the Project's Purpose and Need, it is analyzed in this EA to establish a baseline from which to assess the environmental impacts and mitigation measures of the Proposed Action. As discussed in **Section 2.3.1**, the No Action Alternative is defined as the condition following the installation of temporary bridges, which replace the existing bridge decks and railings, but maintain other existing bridge features including abutments, wing/retaining walls, and rail bed.

The FHWA defines direct effects, indirect effects, and cumulative impacts based on CEQ regulations (40 C.F.R. Parts 1500-1508). Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and are later in time or farther removed in distance, but still reasonably foreseeable. Cumulative impacts are the impacts on the environment that result from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (FHWA Interim Guidance 2003).

For purposes of this discussion, effects resulting from bridge, rail, roadway, and stormwater improvements, as well as temporary construction effects, were evaluated collectively for each resource with no attempt to distinguish between direct and indirect effects. Cumulative impacts to any resources are discussed in **Section 3.19**.

The resource categories considered in this EA are based on FHWA Technical Advisory T 6640.8A and are listed below. The consideration of Farmlands was omitted. Per the Farmland Protection Policy Act (FPPA) of 1984, "Farmland" does not include land already in or committed to urban development. The Study Area is located within such an area. Additionally, there are no Wild and Scenic Rivers or Coastal Zones located within the Study Area.

- Land Use (Section 3.1)
- Traffic (Section 3.2);
- Wetlands (Section 3.3);
- Surface Waters (Section 3.4);
- Groundwater and Drinking Water Resources (Section 3.5);

- Floodplains and Floodways (Section 3.6);
- Wildlife and Wildlife Habitat (Section 3.7);
- Threatened and Endangered Species (Section 3.8);
- Air Quality (Section 3.9);
- Noise and Vibration (Section 3.10);
- Parks, Recreation, and Conservation Land (Section 3.11);
- Historic Resources (Section 3.12);
- Archaeological Resources (Section 3.13);
- Acquisitions (ROW) (Section 3.14);
- Social and Economic Considerations (Section 3.15);
- Utilities/Emergency Management (Section 3.16);
- Hazardous and Contaminated Materials (Section 3.17);
- Visual/Aesthetics (Section 3.18); and
- Cumulative Effects (Section 3.19).

For each resource category, regulatory requirements and methodologies are discussed as appropriate. The existing conditions of the Study Area are then described and the environmental consequences of the Proposed Action are determined using the No Action alternative as a baseline. Where impacts could not be avoided, mitigation measures were considered for the Proposed Action and are described where included.

As a railroad project, the Proposed Action is subject to Federal preemption under the terms of the Interstate Commerce Commission Termination Act of 1995 (ICCTA). At the local level, zoning regulations are preempted by ICCTA. At the state level, the preemption extends to the regulation of Class Two wetlands and buffers under the Vermont Wetland Rule, the regulation of operational phase stormwater runoff under the Vermont Stormwater Management Rule, and the application of the River Corridor component of The Vermont Flood Hazard and River Corridor Rule. However, in each case the protection of the involved resources will be achieved through implementation of the mitigation measures outlined above, as well as compliance with Federal or Federally delegated permits. From the outset of Project planning, VTTrans engaged state regulatory agencies with respect to stormwater, wetlands, and floodplains to gather input that helped inform the design. VTTrans has been committed to fully evaluating natural resources in the Project area, designing the Project in a manner that avoids environmental impacts to the maximum extent feasible and minimizes unavoidable impacts, and implementing best management practices during construction of the Proposed Action. See **Chapter 5** for additional documentation of these efforts.

Additionally, the Proposed Action would be preempted from land use review conducted under Vermont Act 250. Notwithstanding this, as part of the early due

diligence efforts, VTTrans prepared a Project Review Sheet for the Project which included a request for an Act 250 Jurisdictional Opinion. This determination, issued December 2, 2013, indicated that since the Project disturbance involves less than ten acres, no Act 250 permit is required.

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## 3.1 Land Use

This section summarizes land use within the Study Area and assesses the impacts associated with the Proposed Action, in consideration of local and regional plans. This section also presents an assessment of the changes that the rail alignment and green space expansion will have on the land use in the Project Area.

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### 3.1.1 Regulatory Context

In Vermont, Act 250 governs land use and development where applicable (10 V.S.A., Chapter 151). Locally, the Town of Middlebury Zoning and Subdivision Regulations regulate development (Middlebury 2014). As discussed immediately preceding this section, neither Act 250 nor local zoning regulations apply to this Proposed Action. Nevertheless, the Project was evaluated with respect to existing zoning and for consistency with local and regional plans.

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### 3.1.2 Methodology

Middlebury Zoning and Subdivision Regulations, the Middlebury Town Plan, the Addison County Regional Plan, and the Addison County Regional Transportation Plan were reviewed to determine if the Proposed Action is consistent with goals outlined in these plans. Plan elements that apply to the Proposed Action mainly include transportation and land use and are summarized below.

#### **Middlebury Zoning and Subdivision Regulations (Adopted 2008, amended through 2014)**

The purpose of the zoning and subdivision regulations...

*"...is the implementation of the Middlebury Town Plan including the general goals of smart growth, appropriate siting, size, scale and design; protection of natural and historic resources; coordinating developments and related infrastructure; avoiding and mitigating fiscal impacts; promoting a strong Middlebury downtown and East Middlebury village center and adjacent growth areas; providing for alternative energy, efficiency and reducing greenhouse gas emissions; and promoting the health, safety and welfare of the community as described in the Plan. These regulations establish standards by which the Town*

*maintains and enhances the character of the community and its individual neighborhoods. These regulations shall be applied in conformance with the Town Plan and to protect and improve the quality of life in Middlebury.” (page 8, Middlebury 2014)*

### **Middlebury Town Plan (Adopted 2012)**

The Middlebury Town Plan includes general goals related to public infrastructure and land use within the Town of Middlebury (Middlebury 2012). The following summarizes excerpts from the plan that are most applicable to the Proposed Action.

- The Land Use District Map indicates the Project Area is located predominantly within the Central Business District (CBD).
- Section 2.8 summarizes transportation goals and recommendations, including the desire to “rebuild the rail underpasses under downtown with tunnels. Ensure that there are no adverse impacts on surface streets.”

Section 2.11 states that:

*“with the completion of the Cross Street Bridge, the Main Street and Merchants Row railroad bridges now need to be replaced – a tunnel is planned with a lowered rail bed to reduce the street ‘humps’ and handle drainage and wall deterioration issues. This is a State project, but the Town must be closely involved as the impact on downtown and adjacent properties during construction will be severe. There is a need for safer pedestrian and vehicular access to the Marble Works as well as correction of adjacent public and private infrastructure at the time of this major project.”*

### **Addison County Regional Plan (Adopted 2016)**

The Addison County Regional Plan includes elements related to future land use goals, regional impacts, and overall recommendations related to public infrastructure. The following summarizes excerpts from the plan that are most applicable to the Proposed Action.

- Section 2.C includes an evaluation of “Substantial Regional Impact” which relates to significant changes to the service capacity of highways, major employers in the area, the expansion of regional public and quasi-public facilities, and projects that affect regionally significant resources.
- Section 8.2.B presents future land use that supports the continued development and economic growth of the villages in Addison County (Middlebury included) with mixed commercial and residential uses. The plan recommendation is to “promote, plan for and construct public infrastructure like water and wastewater systems, sidewalks, bike lanes, stormwater,

energy and communication systems that make locating in a regional center or village desirable”.

### **Addison County Regional Transportation Plan (Adopted 2008)**

The Addison County Regional Transportation Plan includes recommendations for bridges, land use patterns, economic goals and objectives, and an overall vision of transportation systems in Addison County. The following summarizes excerpts from the plan that are most applicable to the Proposed Action.

- The executive summary presents the vision of the plan, which is to “promote maintenance and limited new development of a safe, integrated transportation system to move people and freight within and through the region now and in the future.” Additionally, the economic goal and objective is to “identify and implement opportunities to remove freight and passenger travel from the roadway system and on to alternative modes of transport such as rail.”
- Section 6.3.3.2 presents recommendations for bridges and includes a call to “repair or replace deficient roadway and rail bridges as necessary. Projects will need to preserve the architectural significance of certain bridges and address their environmental sensitivity.”
- Section 6.4.4.2 indicates land use patterns should be “consistent with the patterns shown in employment centers and population density. Middlebury is home to the major trip attractors and generators in the county, followed by Vergennes and Bristol.”

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#### **3.1.3 Affected Environment**

The Study Area falls primarily within three zoning districts: the CBD, the High Density Residential District (HDR), and Village Residential/Commercial District (VRC). A small portion of the Study Area intersects the Office and Apartment District (OFA) as well as the Special Flood Hazard Area (SFHA) associated with the Otter Creek. Roadways and the VWRC track are not called out separately as transportation uses on the zoning map, but rather are enclosed within the boundaries of these three districts (see **Map 3.1-1**).

In the Town Plan, the CBD is described as the historic downtown area of Middlebury, which contains the majority of public buildings, churches, shops, restaurants, and Town offices. It is located on both sides of the Otter Creek. Four major transportation routes converge in or enter the CBD, including U.S Route 7, Main Street, Merchants Row, and Cross Street, and several other streets converge in the downtown, forming a radial street network. These roads transport large numbers of people visiting the CBD, particularly destinations along Merchants Row and the Village Green, and underpin

the recreational, social, and business aspects of the CBD. The transit hub for Addison County Transit Resources (ACTR) provides public transportation connectivity throughout the greater Middlebury area and to major town and city centers in Addison, Chittenden, and Rutland Counties. In the Town Plan, particular attention is directed towards the conservation of the CBD's scenic and historic character, pedestrian and bicycle amenities, landscaping, and economic and cultural vitality.

The VRC includes residential homes and apartments and provides for mixed uses such as retail stores, restaurants, and other commercial services of a scale and nature consistent with surrounding uses. The VRC encloses the CBD within the Study Area. To the north, it includes the mixed office, commercial, dining, retail, service, and recreational uses in the Marble Works area, and the Town of Middlebury Fire Department, businesses, and residential areas along Seymour Street. To the south, the VRC includes primarily residential uses along Seymour Street south to Cross Street.

The HDR "includes established residential neighborhoods in the 'old village' area, and areas on the edge of the old village which are in the existing or planned Town water and sewer service areas." (Middlebury 2012). The HDR intersects the Study Area at the north and south ends of the Project. At the south end, it includes multi- and single-family residences along on Water Street and at the north end, it includes residences on Willard Street and on Maple Street north of Willard Street. Both the HDR and VRC include relatively undeveloped riparian areas along the Otter Creek south of Merchants Row.

The OFA "is established along major traffic arteries in certain village areas to preserve the character of established neighborhoods by allowing a mixture of residential homes and apartments, appropriate businesses and professional offices. OFA also acts as a transitional buffer zone between commercial areas and residential neighborhoods." (Middlebury 2012). A small area zoned as OFA intersects the Study Area on the west side of U.S. Route 7 south of Methodist Lane.

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### **3.1.4 Environmental Consequences**

The following section discusses the effects on land use of the Proposed Action compared to the No Action Alternative.

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#### **3.1.4.1 No Action**

In the Town Plan, particular attention is directed towards the conservation of the CBD's scenic and historic character, pedestrian and bicycle amenities, landscaping, sustainability, and economic and cultural vitality. The No Action alternative would not

alter these characteristics, though it would not improve them either. The No Action alternative would not improve the transportation and pedestrian safety goals of the Town Plan, nor would it achieve the desired infrastructure improvements.

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#### **3.1.4.2 Proposed Action**

The Proposed Action is consistent with the objectives of Town zoning regulations, the Town Plan, the Addison County Regional Plan, and the Addison County Regional Transportation Plan. Additionally, because the Proposed Action will occupy the existing rail alignment and ROW and will result in the travel lanes of Merchants Row and Main Street and their sidewalks and parking being reestablished with nearly the same footprint and capacity as existing conditions, land use within the Project Area will remain essentially unchanged, which is consistent with the above-referenced planning documents. Therefore, the Proposed Action is not anticipated to result in any adverse change in land use in the CBD, VRC, HDR, or OFA zoning districts.

A permanent change in local land use for the Proposed Action will occur in the area between the two existing bridges. With the tunnel installation, the exposed and entrenched VWRC track section between the two bridges will be closed over and the land above the tunnel will be reclaimed as a park, to be grassed and landscaped. With the reestablishment of the original, pre-railroad extent of the Village Green, the public will have access to additional green space and greater pedestrian mobility through the center of Town. Although minor, this outcome is anticipated to have a beneficial long-term effect on the land uses in the CBD. This is discussed in additional detail in **Section 3.15**, Social and Economic Considerations.

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#### **3.1.5 Mitigation and Summary of Effects**

Because the Proposed Action is anticipated to result in beneficial effects on land use through the reestablishment of the pre-railroad extent of the Village Green, no mitigation approaches are proposed for Land Use. The Proposed Action is consistent with land-use planning at the local, regional, and state levels. The reestablishment of the Village Green over the railroad track is intended as a Project enhancement and is anticipated to have a minor to moderate, long-term, local beneficial effect

The Proposed Action would result in short-term, local, minor adverse effects to land use during the construction period as a result of reduced access to certain areas.

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## **3.2 Traffic**

This section identifies the transportation facilities within the vicinity of the Study Area and assesses the effects associated with the Proposed Action. In particular, this section assesses the effects to vehicular traffic, and includes public transit, rail, bicycle, and pedestrian traffic.

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### **3.2.1 Regulatory Context**

For the Proposed Action, there are no federal, state, or municipal permits required for traffic. FHWA policy is to fully consider the safe accommodation of pedestrians and bicyclists when developing Federal-aid highway projects (23 C.F.R. Part 652). This includes providing accommodations for the special needs of the elderly and disabled in compliance with the 1990 Americans with Disabilities Act (ADA) (29 U.S.C. § 794).

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### **3.2.2 Methodology**

The effects of the Proposed Action on the vehicular, bicycle, pedestrian, and rail traffic were determined by comparing the status quo traffic patterns, operations, and volumes with the expected traffic patterns, operations, and volumes after the construction of the Proposed Action. Existing vehicular traffic information was obtained from traffic turning movement and count data collection performed by VTrans during the past four years (2012-2016) as well as estimated traffic data provided by the VTrans Traffic Research Section. The Proposed Action does not include traffic capacity improvements for vehicles, pedestrians, bicycles, or rail traffic; therefore, limited traffic analyses were conducted.

For the purposes of the roadway, traffic, and parking evaluations, there are three conditions of interest: status quo condition, No Action condition, and Proposed Action condition. The status quo condition was the pre-existing condition of the transportation network as it existed in March 2016, prior to the emergency order that initiated the installation of the temporary bridges. This is the base condition against which the Proposed Action is evaluated because it is the condition that would be existing but for the emergency order to remove the existing bridges due to their advanced state of deterioration. The No Action condition is the existing condition of the transportation network following the installation of the temporary bridges, which has altered the traffic patterns, parking layout, and sidewalks from the pre-existing condition. The Proposed Action condition is the future condition following the installation of the railroad tunnel following its multi-year construction schedule.

### 3.2.3 Affected Environment

The Study Area includes 14 roadways, various pedestrian and bicycle facilities, a segment of single track railroad, a regional transit hub, and on-street and off-street parking. The roadways and other transportation facilities can be seen on **Map 3.2-1**.

#### Roadways

In addition to Main Street and Merchants Row, 12 other roadways (listed below) lie within and outside of the Study Area that could be affected by the Proposed Action. Some of the 12 roadways are privately owned roads that are open to public travel.

- Printer's Alley (private road)
- Maple Street (private road)
- Middle Seymour Street
- Seymour Street
- Elm Street
- North Pleasant Street
- South Pleasant Street
- Court Square
- Court Street
- Cross Street
- Water Street
- Bakery Lane

#### Pedestrian and Bicycle Facilities

The street network in downtown Middlebury includes several pedestrian and bicycle facilities. Both Main Street and Merchants Row have sidewalks on both sides of the roadway, with crosswalks connecting sidewalks at intersections and at mid-block locations. At several locations along these sidewalks, there are pathways that access the main body of the Village Green as well as its Triangle Park component. There are marked crosswalks at the intersection of Main Street and Merchants Row, at the intersection of Main Street and Printer's Alley, across Main Street connecting the Post Office to a paved path in the Village Green, and across Merchants Row connecting the Battell Block to the Triangle Park area near the central transit stop.

While there are no exclusive bicycle facilities within the Study Area, Main Street includes sharrow markings, indicating that bicyclists may share the road with motorists.

## **Rail**

A single-track railroad passes through downtown Middlebury under the bridges proposed for replacement on Main Street and Merchants Row. It is owned by the State, is a part of the VWRC, and is operated by VTR as part of the Vermont Rail System (VRS) serving the north-south corridor between Burlington and Bennington, with connections to Bellows Falls, VT, and Whitehall, NY.

## **Transit**

Middlebury is the hub of the ACTR regional transit system. ACTR provides five shuttle services through Middlebury that use the roadways within the Study Area. The Middlebury Shuttle Bus's five routes all use the transit stop in downtown Middlebury. Additionally, this transit stop is a key stop for the ACTR regional transit service.

## **Parking**

A 2012 Downtown Parking Study for the Town of Middlebury inventoried 972 public and private parking spaces within a study area bounded by the intersection of Middle Seymour Street and Maple Street to the north, N. Pleasant Street/S. Pleasant Street to the east, Cross Street to the south, Academy Street to the southwest, and Weybridge Street and the river to the west. Of these inventoried spaces, 452 spaces were for public access while 520 were designated private; 267 spaces were on-street while 705 spaces were in off-street parking lots. Of those parking spaces inventoried, 40 spaces were on-street public spaces along Main Street and 42 spaces were on-street public spaces along Merchants Row. While some of these parking spaces are now inaccessible due to the temporary bridge installation, 33 parking spaces remain along Main Street and 36 parking spaces remain along Merchants Row adjacent to the two temporary bridges.

## **Business/Residential Access**

Several street-level businesses, residences, offices, a church, and the Middlebury Post Office are located within the Study Area. The Battell Block is a multi-use building containing several street-level businesses with an off-street parking lot accessed directly from Merchants Row adjacent to the Merchants Row bridge. Buildings along the west side of Main Street between the Battell Bridge and the National Bank of Middlebury have an off-street parking lot located behind the buildings with access via Printer's Alley and Marble Works.

### **3.2.4 Environmental Consequences**

The following sections evaluate the traffic effects of the Proposed Action scenario in which the temporary bridges along Main Street and Merchants Row are replaced with the proposed tunnel. For comparison purposes, a base year and a 20-year projection have been evaluated. The base year is 2018; therefore, the 20-year projection is 2038. No operational analysis comparing traffic volumes of the No Action and Proposed Action scenarios has been included because, unlike a traffic safety or capacity improvement project where operations are anticipated to change, the Proposed Action is one of replacement on alignment, which will reestablish roadways and sidewalks with no change in capacity.

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#### **3.2.4.1 No Action**

Due to the continuing deterioration of both the Main Street and Merchants Row Bridges, the Vermont Secretary of Transportation issued an emergency order on March 27, 2017, authorizing VTTrans to install temporary bridges over the railroad to replace each of the existing bridges. Therefore, the No Action scenario consists of maintaining the temporary bridges along Main Street and Merchants Row over the 20-year planning horizon.

The temporary bridges along Main Street consist of a two-lane bridge maintaining two-way vehicular travel along Main Street and a second, smaller bridge providing for pedestrian access across the railroad. The pedestrian bridge connects the sidewalks north and south of the railroad along the west side of Main Street only; the existing sidewalk along the east side of Main Street is discontinued. The temporary bridge along Merchants Row consists of a one-way bridge maintaining eastbound traffic along Merchants Row only (westbound traffic is detoured to Main Street). A pedestrian path is provided along the bridge to provide a sidewalk connection along the south side of Merchants Row; the existing sidewalk along the north side of Merchants Row terminates at the railroad. Additionally, the existing ACTR transit stops on the north side and south side of Merchants Row are discontinued and relocated.

In addition to the vehicular and pedestrian travel way restrictions along Main Street and Merchants Row, the temporary bridges have secondary travel pattern restrictions to Printer's Alley and adjacent parking. Due to the alignment and grade adjustments required for the installation of the temporary bridge along Main Street, Printer's Alley is closed to all vehicle traffic indefinitely; however, Printer's Alley remains open to pedestrian traffic. Eight status quo<sup>2</sup> on-street parking spaces are eliminated and the

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<sup>2</sup> The reference to eight status quo parking spaces are the eight parking spaces that existed prior to the temporary bridges but have been eliminated with the construction of the temporary bridges. See **Section 3.2.2** for additional explanation.

rest of the on-street parking immediately adjacent to the temporary bridge are reconfigured. Similarly, at Merchants Row, four status quo on-street parking spaces are eliminated and the rest of the on-street parking immediately adjacent to the temporary bridge are reconfigured.

Estimated vehicle traffic data for the status quo scenario for Main Street and Merchants Row in 2018 and 2038 are shown in **Table 3.2-1**. The peak hour traffic networks that indicate the 2018 and 2038 weekday morning, midday, and evening peak hour turning movement volumes are shown in **Maps 3.2-2, 3.2-3, and 3.2-4**, respectively.

**Table 3.2-1 Main Street and Merchants Row Traffic Data**

Parameter	Main Street (2018 / 2038)	Merchants Row (2018 / 2038)
Annual Average Daily Traffic in vehicles per day (AADT in vpd)	9,000 / 10,000	1,900 / 2,200
Design Hour Volume in vehicles per hour (DHV in vph)	1,100 / 1,200	230 / 260
Average Daily Truck Traffic in trucks per day (ADTT in tpd)	470 / 710	200 / 370
Heavy Vehicle Percentage (%T)	2.6% / 3.6%	9.8% / 15.1%
Directional Distribution (%D)	60% / 60%	69% / 69%

Traffic Data provided by VTrans Traffic Research Section

#### 3.2.4.2 Proposed Action

The Proposed Action is to replace the temporary bridges with a new tunnel over the railroad. Because the No Action scenario assumes the temporary bridges will be maintained over the 20-year planning horizon with their vehicular, pedestrian, transit, and parking restrictions, the Proposed Action will be evaluated against the historic travel patterns and parking layouts associated with the status quo bridges.

There is no proposed roadway capacity modification included in the Proposed Action that would permanently change traffic operations. The lane use and sidewalk pathways in the Proposed Action will be largely equivalent to the lane use and sidewalk pathways of the status quo condition. Because the roadway footprint of the Proposed Action condition is the same as the roadway footprint of the status quo condition, the design hour traffic volumes identified for 2038 for both Main Street and Merchants Row will result in the same level of service when evaluated under the status quo condition and the Proposed Action condition. Therefore, the Proposed Action will have no impact on the traffic operations or capacity of the roadway network. As the Proposed Action includes no travel way widening, the bicycle facilities through the Study Area will not be affected.

The construction of the Proposed Action will improve the condition of sidewalks and pedestrian paths through downtown Middlebury along Main Street and Merchants Row. The construction of the tunnel also reconnects the Triangle Park area with the remainder of the Village Green, increasing the opportunities for pedestrians to traverse over the railroad and enjoy the restored recreational area. Additionally, the reconstruction of Printer's Alley will improve access to the business, office, and residential properties in the Marble Works section of downtown Middlebury.

The Proposed Action includes increasing the vertical and horizontal clearances for railroad traffic. While the increase in vertical clearance will allow for the passage of double-stacked rail cars, this increase in and of itself does not mean that additional freight will move along the VWRC. At such time that double-stack rail cars are used, train lengths may be shortened, and/or fewer trips may result. Until that time, rail traffic may or may not change (increase or decrease) depending on the commodities being transported and market demand.

At the completion of construction of the Proposed Action, the on-street parking along both Main Street and Merchants Row will be restriped to maximize the available parking while adhering to state and local standards for stall size and access. No permanent loss of parking will occur as a result of the Proposed Action, although with reconfiguration of parking, a minor loss of parking may occur.

### **Temporary Construction Effects**

While there are few permanent effects on traffic, there are several adverse short-term effects associated with the construction phase of the Proposed Action. During construction, the following traffic effects are anticipated:

- Main Street and Merchants Row will each require continuous ten-week full road closure to build the proposed tunnel sections over the railroad. During this ten-week closure, all vehicular, bicycle, and pedestrian traffic that would normally cross the bridges will be detoured to other roadways within Middlebury, including Cross Street, Court Street, and South Pleasant Street. Pedestrian access to buildings and along Main Street and Merchants Row will remain via existing sidewalks.
- During this same ten-week closure period, the railroad will also be closed to through traffic, requiring a regional rail detour of 192 miles to ship freight from Rutland to Burlington (resulting in 128 additional miles of travel as the current trip from Rutland to Burlington is 64 miles).
- In advance of the ten-week closure, Main Street may require occasional lane closures, reducing the two-lane bridge to a single lane with a flagging

operation. This work is expected to last several weeks prior to the ten-week closure period.

- Printer's Alley, a local, privately owned one-way roadway, will be closed to pedestrian traffic several times throughout the reconstruction period for anywhere from a couple of days to several months during each construction season to support drainage improvements and tunnel construction. During these closures, all pedestrian and bicycle traffic will be detoured to other roadways within Middlebury, including Mill Street and the existing pedestrian bridge over the river.
- The parking area behind the Battell Block will be inaccessible to traffic from Merchants Row during most of the construction work along Merchants Row, though a temporary road will be constructed to access the parking area from the south.
- Water Street, a local residential cul-de-sac, will be the southern access point for the temporary access road to the Battell Block parking area, increasing the traffic flow on this roadway throughout tunnel construction.
- During the drainage improvements, and the periods before and after the ten-week closure, the railroad traffic will be restricted to pre-approved working hours, interrupting some scheduled service.
- Approximately 100 parking spaces throughout the downtown area will be temporarily closed or have access restrictions throughout the tunnel construction effort. The locations of impacted parking spaces are shown on **Map 3.2-5**. It is noted that the 100 parking spaces impacted by the construction will not require continuous closure. Instead, a portion of the parking spaces will be closed for the various construction activities for periods of time from two weeks up to several months. It is anticipated that during the construction off-peak season when construction activities will be minimal, the majority of parking spaces will not be impacted and will be open to the public. The expected temporary parking impacts during each of the construction years is as follows:
  - Approximately 10 to 15 parking spaces will be closed for up to four months in Year 1. Most of these closed spaces will be in the vicinity of Maple Street along the railroad tracks, with some of the closed spaces located along Triangle Park.
  - Less than 8 parking spaces will be closed for several weeks in Year 2.
  - During the ten-week roadway closure in Year 3, it is anticipated that 29 parking spaces along Main Street, 34 parking spaces along Merchants Row, 18 parking spaces along Maple Street as well as 15 to 20 other distributed parking spaces will be closed for some portion or all of the ten-week closure period.
  - During the few weeks prior to and following the ten-week closure period, approximately 40 to 50 of these parking spaces may be

- restricted or closed for the Contractor's mobilization and demobilization.
- As Year 4 is primarily for final paving, landscaping, and clean-up efforts, approximately 50 to 65 parking spaces will be closed in a staggered manner for not more than two weeks at a time during Year 4.
  - In addition to the parking spaces that will be temporarily closed or restricted as needed for the construction operations, there are several parking spaces that will remain open but whose access may be altered by construction.
    - The parking behind the Battell building will remain open but when Merchants Row is closed, access to this parking will be redirected to a temporary access road accessible from Water Street.
    - The parking behind the National Bank of Middlebury will not be accessible from Main Street directly (via Printers Alley) but will be redirected to enter via Maple Street.
    - South Pleasant Street between Merchants Row and Cross Street will be made one way southbound. The current on-street parking along the east side of South Pleasant Street will only be accessible from the Merchants Row end of South Pleasant Street and not from Cross Street directly.

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### **3.2.5 Mitigation and Summary of Effects**

The Proposed Action will result in no long-term effects on roadway capacity, bicycle access, sidewalk continuity, and rail capacity. The Proposed Action does include some minor beneficial effects such as improvements to sidewalk condition and accessibility, upgraded transit operations, and improved access to commercial and residential properties in the Marble Works area.

The Proposed Action intends to provide an equivalent quantity of parking spaces as the status quo condition. With the Proposed Action's repaving, the community has the opportunity to reconfigure the on-street parking layouts on both Main Street and Merchants Row to include an appropriate quantity of conveniently located handicap accessible spaces as well as to maximize the quantity of general use on-street parking spaces in the downtown area. In the final reconfiguration, there could be a minor loss of parking quantity in order to achieve other parking goals.

The Proposed Action includes several mitigation measures that will be implemented for temporary construction-related impacts.

- Using Accelerated Bridge Construction (ABC) rather than conventional means of construction to expedite the construction process and minimize construction-related effects on downtown Middlebury.
- To accommodate the ten-week road closure, a Transportation Management Plan (TMP) is being developed to include a series of traffic detours to re-route vehicular, bicycle, and pedestrian traffic around the closures. The community will be consulted in the development of detours.
- To accommodate the ten-week rail closure, VTrans is working with the railroad to establish a regional detour.
- To accommodate the closure of Printer's Alley, the TMP includes a pedestrian detour to connect Main Street to Maple Street.
- The Proposed Action includes a temporary access road (via Water Street) to provide access to the Battell Block off-street parking area.
- Alternative parking options to mitigate the temporary loss of parking spaces in the downtown core during construction are under consideration.

In summary, during construction, the Proposed Action would result in a short-term, local adverse effect on traffic due to road closures and associated limitations on access. These effects would be minor to moderate, given the mitigation measures described above.

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## 3.3 Wetlands

This section describes the existing wetlands within the Study Area. Existing wetlands include jurisdictional and non-jurisdictional wetlands in the Regulatory Context **Section 3.3.1** below. It then evaluates the environmental consequences to the wetlands of the Proposed Action and discusses avoidance, minimization, and mitigation of those effects. Technical studies supporting this section are provided in **Appendix B**.

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### 3.3.1 Regulatory Context

In Vermont, wetlands comprise less than five percent of the state's surface area (Vermont Fish and Wildlife Department [FWD] 2015e). Although representing a small portion of overall land cover, wetlands provide important functions that benefit wildlife, water quality, and the public. The type, size, landscape position, and other factors can influence the function and value of a wetland or complex of wetlands, but in general they provide functions such as groundwater recharge/discharge, floodflow storage, fisheries habitat, sediment and nutrient retention, shoreline protection, recreation, aesthetics, and wildlife habitat.

Wetlands are defined as areas inundated by surface water or groundwater for a sufficient amount of time to support a prevalence of vegetative life that requires saturated soil conditions, referred to as hydrophytic vegetation. Wetlands generally include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Areas that do not support one or more factors of hydrophytic vegetation, hydric soils, or wetland hydrology are not considered a wetland. Streams, reservoirs, and deep lakes, are also not considered wetlands and are defined as waterbodies or waterways.

The United States Army Corps of Engineers (USACE) has jurisdictional authority over what is referred to as Waters of the United States (WOTUS), which includes wetlands and waterways. Section 404 of the Clean Water Act (CWA) defines WOTUS as all waters that are used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters, including interstate wetlands; and all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, and drainage ditches, that lead to regulated WOTUS, the degradation or destruction of which could affect interstate or foreign commerce (20 C.F.R. 230.3).

Wetlands are therefore Federally protected under the CWA and activities resulting in impacts to them require a permit from the USACE under Section 404 of that Act. Under Section 404, only the least environmentally damaging practicable alternative (LEDPA) can be permitted. A project must incorporate appropriate and practicable measures to offset unavoidable impacts to aquatic resources, and for wetlands, strive to achieve a goal of no overall net loss of values and functions.

For state-jurisdictional activities, the State of Vermont regulates wetland resources under the Vermont Wetland Rules (VWR) (VT Code R. 12 004 056), adopted in 1990 and amended under the authority of the Secretary of Natural Resources pursuant to 10 V.S.A. § 905b(18), most recently adopted January 26, 2017, and effective April 1, 2017. This statute limits the applicability of these rules to those wetlands which are so significant that they merit protection in this program. Significance is determined by an evaluation of the functions provided by the wetland as described in Section 5 of the VWR. Wetland classifications defined in the VWR are as follows: Class I wetlands are those that have been deemed by the Panel to be exceptional or irreplaceable and merit the highest level of protection; Class II wetlands are those wetlands that are protected by the state based on an assessment of functions and values per the VWR; and Class III wetlands are not regulated under the VWR.

For projects that are reviewed under an Act 250 permit process, Criterion 1(G), requires that a proposed project comply with the VWR (ANR 2017). The VWR regulate

significant wetlands (Class I and Class II wetlands) and their buffers. Impacts to Class III wetlands are not explicitly considered under Act 250 Criterion 1(G), but are generally reviewed through consideration of the potential for undue adverse impacts on the natural environment.

As discussed above, the Project is Federally preempted from regulation or permitting by the Vermont Department of Environmental Conservation (DEC) Wetlands Section under the VWR, as well as permitting under Act 250. Additional details regarding applicable wetland permitting considerations are included in **Section 3.3.4**.

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### 3.3.2 Methodology

Wetlands within the Study Area were delineated during field investigations conducted on March 26, 2013, and September 6, 2016 (see **Map 3.3-1**). Wetland delineations were made pursuant to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (USACE 2012a). Wetlands were identified in the field with flagging, and field notes were collected to record information such as wetland type and classification, general characteristics, potential function and value, and any other unique qualities or conditions present. Wetlands were classified in accordance with the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Wetland functions and values were evaluated in accordance with the USACE Highway Methodology Workbook Supplement (USACE 1999). USACE Wetland Determination Data Forms were completed for onsite wetlands for which data was collected along the wetland and upland boundary. These forms include detailed information about the soil, vegetative, and hydrologic conditions of the wetlands as well as the non-jurisdictional adjacent upland areas. The USACE Wetland Determination Forms and the Highway Methodology Function and Value Forms are provided in **Appendix B**. Relevant Project and Proposed Action information and the results of wetland and surface water delineations were provided to USACE in November 2016, at which time USACE did not express any concern over the scope of the Project or the Proposed Action or request to conduct a site visit. **Appendix B** includes electronic mail correspondence with USACE stating that a site visit to confirm wetland boundaries for delineated wetlands is not required.

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### 3.3.3 Affected Environment

Three wetlands were identified during the 2013 and 2016 field investigations within the Study Area. The Study Area and locations of these wetlands are depicted in **Map 3.3-1**. No vernal pools or potential vernal pools were identified in the Study Area. All delineated wetland areas were observed within the riparian zone of the Otter Creek.

Representative photographs of select wetlands are included in **Appendix B**.  
Summary information for each feature is included below.

### **Wetland 2013-CM-1**

- Approximately 9,300 square feet in size; extends beyond the limits of the Study Area.
- Located along the east side of the Otter Creek upstream of the Falls and within the riparian zone.
- Classified as a palustrine, forested wetland characterized by an overstory of broad-leaved deciduous trees and by seasonal flooding (PFO1C).
- Existing functions of the wetland as defined in the USACE Highway Methodology Workbook Supplement (USACE 1999) include: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, and Sediment/Shoreline Stabilization.

### **Wetland 2016-100**

- Approximately 1,500 square feet in size, and extends beyond the Study Area.
- Located along the north-northeast side of the Otter Creek below the Falls and within the riparian zone.
- Characterized as a palustrine emergent wetland dominated by herbaceous plant cover and intermittently flooded (PEM1J).
- Occurs where organic and mineral soils overlay bedrock outcrops which form a portion of the bank of the Otter Creek.
- Existing functions of the wetland as defined in the USACE Highway Methodology Workbook Supplement (USACE 1999) include: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shoreline Stabilization, and Visual Quality/Aesthetics.

### **Wetland 2016-101**

- Approximately 1,200 square feet in size, exists entirely within the Study Area.
- Located along the north side of the Otter Creek below the Falls and within the riparian zone.
- Characterized as a palustrine emergent wetland dominated by herbaceous plant cover and intermittently flooded (PEM1J).
- Occurs where sandy, mineral sediment deposits form a portion of the bank of the Otter Creek just downstream of the Falls, and an emergent wetland has developed.
- Existing functions of the wetland as defined in the USACE Highway Methodology Workbook Supplement (USACE 1999) include: Groundwater Recharge/Discharge, Floodflow Alteration, and Sediment/Toxicant Retention.

### 3.3.4 Environmental Consequences

Impacts to wetland areas resulting from the Proposed Action were evaluated by overlaying the proposed limits of disturbance for the Proposed Action on mapping of existing conditions, including delineated wetlands. A summary of anticipated impacts, both permanent and temporary, for each of the three wetland areas identified is included in **Table 3.3-1**.

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#### 3.3.4.1 No Action

There are no known plans for development that would impact wetlands in the Study Area. Any future development that could impact wetlands would need to be permitted through the Section 404 permit process. Such activities may also be regulated under the VWR and Act 250.

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#### 3.3.4.2 Proposed Action

The Proposed Action includes the construction of both temporary and permanent structures. Due to site constraints and the presence and position of the wetlands, the Proposed Action will result in unavoidable effects to the wetlands. Effects to wetlands have been avoided or minimized to the greatest extent practicable during development of the Proposed Action, given the other resources and construction constraints on the site. Unavoidable impacts on Wetland 2013-CM-1, 2016-100, and 2016-101 are summarized **Table 3.3-1**. The Proposed Action would permanently impact 600 square feet of wetland area for the access road to the stormwater outfall below the Falls. Additionally, the Proposed Action would result in temporary, construction impacts to 20 square feet of wetland during installation of the stormwater outfall upstream from the Falls, near the Cross Street Bridge.

Impacts to Wetland 2013-CM-1 would result from construction of a stormwater outfall upstream of the Falls near the Cross Street Bridge pier. Impacts to Wetlands 2016-100 and 2016-101 would result from the construction of a temporary access road to a stormwater outfall just below the Falls. Impacts to 2013-CM-1 are unavoidable; however, encroachment into wetlands/waters and associated vegetation clearing in the riparian area from the proposed stormwater infrastructure has been minimized by locating the outfall to largely occupy the same location as a previously installed stormwater outfall. Likewise, impacts to Wetland 2016-100 and 2016-101 are also unavoidable; in this case, encroachment on wetlands/waters has been minimized by post-construction narrowing and revegetating the access corridor for the operational lifespan of the Project, as well as by using an existing access road to the greatest extent possible and by siting the outfall in the nearest location possible to achieve positive (*i.e.*, gravity) drainage in the stormwater system.

**Table 3.3-1 Impacts to Federally Regulated Jurisdictional Wetlands (square feet)**

<b>Wetland</b>	<b>Temporary Impact</b>	<b>Permanent Impact</b>
2013-CM-1	20	0
2016-100	0	270
2016-101	0	330
<b>Totals</b>	<b>20</b>	<b>600</b>

### 3.3.5 Mitigation and Summary of Effects

The Proposed Action would be eligible for coverage under Category 2 of the Vermont Department of the Army General Permit (GP) given the generally minimal degree of fill impact to jurisdictional wetlands (and waters) of the United States (less than 3,000 square feet) and the location of proposed impacts being in a Navigable Water of the U.S. (USACE 2012b). Coordination with USACE to confirm this categorization will be carried out once design plans have been finalized.

Compensation for unavoidable wetland impacts is not anticipated to be required, as the permit application for the Proposed Action 1) illustrates how the plans for the proposed road alignment and outfall locations have considered alternative approaches to avoid wetlands and 2) proposes the least impact feasible while satisfying the Project's stated Purpose and Need.

To mitigate adverse effects to wetlands, the Proposed Action will employ Best Management Practices (BMPs), which include:

- Minimizing the clearing of woody vegetation;
- Installing erosion prevention and sediment control (EPSC) measures in accordance with the provisions of the Construction Stormwater Discharge Permit and the associated approved EPSC Plan, including the use of a prescribed seed mix consisting of native species to revegetate areas of temporary wetland impact and
- Restoring all areas of temporary disturbance in wetland buffers following construction with seed and replanting woody vegetation where feasible and appropriate.

In summary, a site-specific, minor adverse effect on wetlands would occur as a result of the Proposed Action due to unavoidable fills required. However, given the mitigation measures described above to address these impacts, there would be no appreciable long-term effects on the functions and values of the riparian wetlands along Otter Creek.

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## 3.4 Surface Waters

This section discusses surface waters that exist within the Study Area, and includes an analysis of potential surface water impacts associated with the Proposed Action. Surface waters, or Waters, are defined under the Vermont Water Quality Standards as “all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the State or any portion of it (ANR 2017).

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### 3.4.1 Regulatory Context

Surface water quality in the United States is regulated by the U.S. Environmental Protection Agency (EPA) under the CWA. To implement these CWA requirements the EPA has delegated the authority to the Vermont Agency of Natural Resources (ANR) to establish and regulate compliance with the Vermont Water Quality Standards (ANR 2017). The VWQS establish Water Quality Criteria as the applicable state regulatory standard for managing surface waters to protect human health and aquatic biota. Stormwater discharges in Vermont are regulated by two different administrative programs.

For those projects that fall under state regulatory authority, ANR has jurisdiction over operational-phase (*i.e.*, post-construction) discharges of stormwater. These discharges are regulated through the Vermont Stormwater Management Rule for Stormwater Unimpaired Waters (effective March 15, 2011), adopted under the authority of 10 V.S.A. §§ 1263-1264. The purpose of the Stormwater Management Rule is to reduce stream channel instability, pollution, and sedimentation, minimizing risks to surface water quality. Within the Stormwater Management Rule, ANR sets forth treatment standards as the applicable regulatory standards for stormwater management. Although the Proposed Action is Federally preempted from regulation or permitting by the Stormwater Management Rule, it nonetheless incorporates treatment and control measures to improve existing stormwater management in the Project Area.

Under the National Pollutant Discharge Elimination System (NPDES) permitting process, ANR is also the EPA-delegated regulatory authority with jurisdiction over certain other stormwater discharges to surface waters, including construction-phase stormwater discharges.

In addition to state-level regulatory authority, proposed impacts to streams and rivers are regulated under the jurisdiction of the USACE. The USACE regulates physical impacts to Waters of the United States (see **Section 3.3**, “Wetlands,” for a definition)

below the Ordinary High Water Mark (OHW) under Section 404 of the CWA and in some cases under Section 10 of the Rivers and Harbors Act (RHA) of 1899. RHA regulation applies to “navigable waters” which, in Vermont, include Lake Champlain, the Connecticut River, and other major rivers and tributaries including the Otter Creek from the mouth up to approximately River Mile (RM) 63.8 in Proctor, thus including the Project Area. These represent waters which are “presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.” If impacts to navigable waters are below certain thresholds, then those impacts may be eligible for authorization under the Vermont GP as discussed in Section 3.3.5 above. Section 401 of the CWA provides states with the authority to ensure that a Federally issued permit would not violate state water quality standards, and as such a Water Quality Certification (WQC) is required from ANR in conjunction with a Section 404 authorization under the GP.

For projects that fall under state regulatory authority (*i.e.*, those projects that are not Federally preempted such as the Proposed Action is), ANR also has jurisdiction over stream alterations and placement of stream-crossing structures pursuant to 10 V.S.A. Chapter 41. Further, under the Vermont Highway Law 19 V.S.A. § 10(12), commonly referred to as Title 19, VTrans must conduct a consultation with ANR for any project that involves streams, ponds, or lakes. The consultation includes sharing project information and plans; however, there is no formal permit process associated with Title 19.

For projects that are reviewed under an Act 250 permit process, Criterion 1(E) requires that projects will, when feasible, maintain natural stream channel condition and will not endanger the health, safety, or welfare of the public or adjoining landowners [10 V.S.A. § 6086(a)(1)(E)].

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### **3.4.2 Methodology**

Surface water delineation and assessment work was completed within the Study Area in March 2013 and in September 2016. The OHW level of the Otter Creek was delineated according to methods detailed in the document “Regulatory Guidance Letter: Subject – Ordinary High Water Identification” (USACE 2005). Stream assessment was also conducted pursuant to ANR Riparian Buffer Guidance (ANR 2005). For surface water delineations, the flow regime (*i.e.*, ephemeral, intermittent, or perennial) is classified for each identified stream based on qualitative observations of in-stream hydrology indicators at the time of observation, as well as geomorphic characteristics.

The only surface water in the vicinity of the Proposed Action is the Otter Creek, a perennial surface water draining approximately 631 square miles of watershed area

according to the United States Geologic Survey (USGS) StreamStats application. The Otter Creek surface water in the vicinity of the Proposed Action is described in the following section and represented in **Map 3.4-1**.

Existing stormwater infrastructure within the Study Area was identified from existing Town mapping resources and from an existing conditions survey. Data were collected from outfall locations, catch basins, and stormwater piping, providing a context for understanding the existing stormwater conveyance and discharges to receiving waters within the Study Area.

Surface water quality sampling was conducted in the Otter Creek in 2016 to assess the in-stream water quality conditions for evaluating the potential need to dewater accumulated groundwater to the Creek during proposed construction. The surface water sampling station was located near the Proposed Action site and upstream of the Otter Creek Falls in downtown Middlebury. Surface water sampling was completed on three dates and at a range of flow rates as recorded by the USGS gauge on the Otter Creek in Middlebury: on October 21, 2016, at approximately 180 cubic feet per second (cfs), on October 24, 2016 at approximately 888 cfs, and on November 8, 2016, at approximately 633 cfs. All surface water samples were analyzed for lead and arsenic, which are the constituents identified from groundwater monitoring (see **Section 3.5**) as exceeding the Vermont Groundwater Enforcement Standards (VGES) which specify maximum allowable concentrations of specific contaminants in groundwater.

To determine the effect on the Otter Creek from the potential need to dewater accumulated groundwater during construction, groundwater recharge and mass balance calculations were completed. Dewatering could be necessary during construction due to planned excavation activities and during long-term operation as a result of groundwater infiltrating the proposed stormwater system. The inflow of groundwater into the proposed excavation area and stormwater system were estimated separately using standard methodology based on Darcy's law of groundwater flow (a scientific theorem that describes the flow of a fluid through a porous medium) and using conservative assumptions, such as a larger-than-anticipated lateral area and a thicker-than-anticipated saturated zone. The resultant in-stream concentrations for those groundwater constituents that exceeded the VGES (*i.e.*, lead and arsenic) were conservatively calculated based on the 7Q10 drought low-flow rate (the lowest seven-day average flow rate that occurs on average once every 10 years) of the Otter Creek, the calculated groundwater flow, the 2016 groundwater contaminant concentrations, and the baseline 2016 in-stream concentrations.

### 3.4.3 Affected Environment

The Otter Creek, which flows generally from south to north through the Town of Middlebury, is the only state or Federally regulated surface water in the vicinity of the Proposed Action, based on field investigations of the Proposed Action site and surrounding areas carried out in March 2013 and September 2016.

The Otter Creek OHW delineations were conducted to determine the limits of USACE jurisdiction. The delineated OHW for the Otter Creek is separated by roughly 45 feet at its closest point to the centerline of the existing railroad track, at a location just north of the Cross Street Bridge. The Otter Creek within the vicinity of the Proposed Action has historically undergone bank and channel modifications associated with armoring for stabilization and flood protection for the surrounding dense development of the Town of Middlebury, as well as the dam which forms the Otter Creek Falls immediately west (downstream) from the Main Street Bridge. A history of modification, stabilization, channel relocation, and other activities have impacted the waterway elsewhere on the Otter Creek, both upstream and downstream from the Proposed Action.

The Otter Creek in the Study Area is a Class B Water as defined in the VWQS (ANR 2017). Starting approximately one mile downstream from the Proposed Action, at the Pulp Mill Covered Bridge, and extending to the mouth of the Otter Creek at Lake Champlain, the Otter Creek is classified as an impaired waterbody for the presence of *Escherichia coli* (E. coli) and is subject to a Total Maximum Daily Load (TMDL) approved by the EPA (2016). A segment of the Otter Creek within the vicinity of the Proposed Action is listed on the DEC 2016 Stressed Waters List as “Otter Creek, Middlebury River Down to Vergennes” for noted problems of turbidity, nutrients, and sediment from agriculture and stream bank erosion.

Current and ongoing impacts to the Otter Creek, both within the Study Area as well as upstream and downstream, include, but are not limited to, a long history of channel and bank modification, stormwater contributions from dense development in the village center of Middlebury as well as other towns and villages, and agricultural runoff and other non-point source pollutants.

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### 3.4.4 Environmental Consequences

#### 3.4.4.1 No Action

The No Action alternative would not result in any change to existing stormwater infrastructure, which is recognized as being the collective result of numerous discrete

projects, retrofits, and maintenance or replacements over many years' time, and as such is in variable condition.

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#### **3.4.4.2 Proposed Action**

The Proposed Action incorporates activities that would result in effects to the Otter Creek, including the placement of temporary and permanent fill below the delineated OHW, as discussed below.

The drainage design for the Proposed Action has been advanced through many of the phases of Project planning. The principal stormwater outfall was initially designed so that the drainage pipe would be installed via an excavated trench, with the outfall terminating along the bank of the Otter Creek. This preliminary design anticipated that outfall construction could proceed from upland areas and that no fill would be required below the OHW of the Otter Creek.

Subsequently, and facilitated in part by the removal of the Lazarus Building, the design for the stormwater pipe discharging to the Otter Creek was refined, and will now be installed by microtunneling through bedrock, thus avoiding excavation within the Marble Works Riverfront Park (see **Map 2.5-1**). This approach changed the orientation of the outfall pipe somewhat so that it terminates farther south and within a slope above the Otter Creek downstream (north) from the Otter Creek Falls. Access to this location for outfall construction is not possible from upslope locations. Construction of a temporary access road along the north (right) bank of the Otter Creek to the outfall location is required so that a crane can be positioned to install a pre-cast concrete headwall. This access road is to be 16 feet wide for construction access, and this area would be restored to preconstruction conditions following construction. The temporary access road will result in the placement of fill material below the OHW of the Otter Creek.

Accordingly, the Proposed Action will entail both temporary and permanent adverse effects from the placement of stone fill below the OHW of the Otter Creek. An unavoidable temporary impact of less than 800 square feet and permanent impact of approximately 500 square feet below the OHW would result from construction of the access road needed to build the drainage outfall.

Additionally, the southern stormwater outfall (adjacent to the Cross Street Bridge) would result in approximately 15 square feet of permanent fill placed below the delineated OHW of the Otter Creek. This outfall location is needed to enable gravity drainage of stormwater from the southern portion of the Study Area.

Construction of the Proposed Action will require temporary groundwater dewatering, which is proposed to be routed to the Otter Creek via existing stormwater infrastructure. The Proposed Action would also route groundwater and stormwater to the Otter Creek permanently after construction to maintain dry conditions within the tunnel and along the tracks. In the event of a spill along the railroad tracks, to the degree that spilled materials were not collected, the stormwater infrastructure would route this material to the Otter Creek.

A calculation of movement of fluid through a porous medium, referred to as Darcy's law, was used to determine groundwater discharge to the Otter Creek. Results of the operational-phase Darcy's law calculation of groundwater flow indicate that a maximum of approximately 112 gallons per minute (gpm) of groundwater would infiltrate into the stormwater system during long-term operation. Based on this analysis, this very conservative groundwater discharge rate would not result in an increase in the in-stream concentration of the contaminants that exceeded the VGES in groundwater above the applicable Water Quality Criteria.

Results of the construction-phase Darcy's law calculation of groundwater flow in the Study Area indicate that a maximum of approximately 345 gpm of groundwater would infiltrate the excavation area during construction activities. This assumes that the entire excavation area, some 3,500 linear feet, would be open at one time. Mass balance calculations have concluded that a very conservative groundwater discharge rate of 345 gpm from the excavation area into the Otter Creek would not raise the in-stream concentration of the contaminants that exceeded the VGES in groundwater above the applicable Water Quality Criteria.

Based on groundwater and surface water data collected to date, Darcy flow calculations, groundwater recharge calculations, and mass balance calculations, the temporary and permanent actions would have no impact to the surface water quality of the Otter Creek. Additionally, the temporary dewatering would be managed under a NPDES permit from ANR.

The Proposed Action would result in unavoidable but relatively minor temporary and permanent physical impacts below the Otter Creek OHW, thus requiring permit authorization from the USACE.

Per the Procedures of the GP regarding State Approvals, the Proposed Action has been conditionally granted a WQC for GP Category 2 activities by ANR, provided that 1) the USACE notifies ANR, along with other members of the interagency review team, the United States Fish and Wildlife Service (USFWS) and the EPA, and 2) the USACE finds that the activity is reasonably likely to have minimal or no impact on waters. The suite of activities eligible for Category 2 coverage are defined in the GP.

ANR retains the right to require an Individual WQC for any Category 2 activity. The potential need for an individual WQC for a project is typically determined during pre-application consultation with USACE and ANR.

The effects to the Otter Creek from the Proposed Action are negligible given the small magnitude of impact, and when considered in the context of existing conditions.

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### 3.4.5 Mitigation and Summary of Effects

There would be no appreciable long-term effect on surface waters as a result of the Proposed Action. Physical impacts to surface water within the Study Area have been avoided and minimized to the greatest extent practicable during the design of the Proposed Action. Permit conditions for construction phase stormwater discharges, BMPs to be implemented to protect water quality, upgraded stormwater infrastructure, and adherence to an EPSC plan will mitigate the minor adverse effects described in **Section 3.4.4**.

Although the Project is not regulated under the Vermont Stormwater Management Rule due to Federal preemption (see **Section 3** Introduction), the Proposed Action has been coordinated with ANR resource specialists and includes an upgraded stormwater system featuring new stormwater drain piping, manholes, catch basins, swirl separators, and grass-lined swales to treat stormwater quality and detain stormwater runoff prior to discharge. The Proposed Action would have a permanent beneficial effect on the condition of stormwater that reaches the Otter Creek.

In the event of a spill along the railroad tracks, to the degree that spilled materials were not collected, this material could flow to the Otter Creek, as is currently the case. However, under the Proposed Action, this potential occurrence would be managed in accordance with an Emergency Response Plan (ERP) to be developed and implemented by VTrans and VTR in coordination with the Middlebury Fire Department. Refer to **Section 3.16** for additional details on the ERP.

EPSC measures and new upgraded stormwater infrastructure are proposed as mitigation for stormwater impacts under the Proposed Action. EPSC measures and inspections will be conducted in accordance with the Proposed Action's construction-phase stormwater discharge permit to prevent soil migration to the Otter Creek. EPSC measures during construction will include disturbed area minimization, diversionary measures, soil migration deterrents (silt fencing, turbidity curtains, etc.) and regular inspections.

Given the construction phase mitigation measures described above, adverse effects on surface waters would be short-term, site-specific, and minor, due to unavoidable fills required and the potential for soil erosion during construction.

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## **3.5 Groundwater & Drinking Water Resources**

This section identifies the presence and current use of groundwater resources in the vicinity of the Study Area. Groundwater can be an important water supply for residential, commercial, and industrial use. Contamination of groundwater resources can have social, economic, and health-related consequences for the communities that rely on them.

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### **3.5.1 Regulatory Context**

Drinking water from both public and non-public water systems is regulated by the EPA under the Safe Drinking Water Act and is administered in Vermont by ANR under the Water Supply Rule (ANR 2010). Within the Water Supply Rule, ANR sets forth the Maximum Contaminant Levels (MCLs) as the applicable regulatory standards for drinking water.

Groundwater in the State of Vermont is managed under the jurisdiction of the ANR by the Groundwater Protection Rule and Strategy, adopted under the authority of the 10 V.S.A. §§ 1390-1394 (ANR 2016a) and Interim Groundwater Quality Standards (ANR 2016c). The purpose of this rule and strategy is to manage groundwater resources, minimizing risks to groundwater quality by limiting human activities that may present unreasonable risks to the use classifications of groundwater in the vicinities of such activities. ANR sets forth the VGES as the applicable regulatory standards for groundwater within the Groundwater Protection Rule and Strategy.

The EPA regulates discharges of contaminated groundwater directly from a point sources (such as a pipe, ditch or channel) into a receiving waterbody (such as a lake, river or ocean) through a NPDES permit. ANR is delegated by EPA to implement the NPDES permit program in Vermont.

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### **3.5.2 Methodology**

Digital data available from the Vermont Center for Geographic Information (VCGI) were used to determine the presence/absence of public and non-public drinking water wells, groundwater source protection areas, and surface water source protection areas near the Study Area.

Past groundwater monitoring reports for the Study Area completed by Otter Creek Engineering, Inc. (OCE 2015) and GeoDesign, Inc. were reviewed to assess the quality of shallow groundwater (GeoDesign 2015). This data was supplemented through the installation of additional groundwater monitoring wells in accordance with a DEC-approved work plan (VHB 2016b) to characterize other portions of the Study Area. During August 2016, newly installed wells and existing wells were sampled using dedicated disposable tubing and standard low-flow purge procedures. Groundwater samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) 8 metals, total petroleum hydrocarbons diesel range organics (TPH-DRO), total petroleum hydrocarbons gasoline range organics (TPH-GRO) and poly chlorinated biphenyls (PCBs).

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### 3.5.3 Affected Environment

The Study Area is not located within a wellhead protection area. The nearest source protection areas are located three miles to the east (Middlebury Water Department Wells). The nearest private drinking water well is located approximately 1,700 feet to the northeast. The surrounding area is supplied with potable water from the municipal system that obtains water from wells and springs located several miles to the east at a higher elevation than the Study Area.

Within the Study Area, shallow groundwater flows to the west towards the Otter Creek but may be interrupted by the bedrock sidewalls along the railroad tracks (OCE 2015) based on site-specific monitoring data from groundwater monitoring wells. Water table elevations measured in 2010 through 2016 were relatively shallow, approximately 1 to 8 feet below ground surface along the railroad track within the Study Area (OCE 2015).

Groundwater monitoring results from within the Study Area indicate that:

- Benzene exceeded the VGES in four wells during a monitoring event by Otter Creek Engineering, Inc. in 2015 (OCE 2015).
- Lead exceeded the VGES in two wells during a monitoring event performed by VHB in 2016. Lead was also detected below the VGES in two wells during the same monitoring event. Concentrations below the VGES are not considered to be contaminated.
- Arsenic, barium, chromium, acetone, trichloroethene (TCE), tetrachloroethene (PCE), TPH-DRO, and select polycyclic aromatic hydrocarbon (PAH) compounds were detected in at least one of the groundwater monitoring wells but at concentrations below the VGES during a monitoring event performed in 2016. As concentrations were below the VGES, this groundwater is not considered to be contaminated.

The groundwater monitoring results indicate that groundwater in the Study Area exhibits minor residual contamination most likely related to a 2007 train derailment (refer to **Section 3.17**). Other contaminants detected in groundwater were below the VGES and are indicative of typical urban environments with no specific source(s) identified.

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### **3.5.4 Environmental Consequences**

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#### **3.5.4.1 No Action**

Under the No Action Alternative, groundwater in the Study Area would continue to have various levels of contamination similar to past monitoring results. The Town water supply and existing monitoring wells are expected to remain as they are.

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#### **3.5.4.2 Proposed Action**

The Proposed Action Alternative would have no effect on drinking water resources as designated resources are located a considerable distance and generally upgradient from the Study Area.

The Proposed Action would route groundwater to the Otter Creek after construction via perforated subsurface stormwater infrastructure. Existing chemical and hydrological analyses of groundwater indicates that these actions would not adversely affect the receiving waters.

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### **3.5.5 Mitigation and Summary of Effects**

Mitigation for impacts to drinking water resources would not be required as no long-term adverse effects to these resources are expected.

Groundwater encountered within the Study Area during construction will be managed in accordance with a CAP, an individual NPDES Permit, and a Health and Safety Plan (HASP), each of which will be reviewed and approved by DEC prior to the onset of construction. An Environmental Manager with Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training, who is experienced with the handling and management of contaminated media, will be on-site for construction observation during all days when groundwater discharge is being conducted.

The Proposed Action would involve management of groundwater resources during construction for dewatering, and result in a minor temporary effect on these resources. The Proposed Action would have a local, minor beneficial long-term

impact to groundwater resources in the Project Area, as some contaminated soils would be removed during construction, and as a result, these soils would therefore no longer leach contaminants into groundwater. Groundwater quality would be expected to show some improvement over the long-term due to the removal of these soils.

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## **3.6 Floodplains and Floodways**

This section describes 100-year floodplains within the vicinity of the Study Area and assesses impacts on that floodplain(s) associated with the Proposed Action. Regulated 100-year floodplains, also known as SFHA, are floodplains mapped by the Federal Emergency Management Agency (FEMA). Floodways are the portion of the regulated floodplain that conveys the majority of flow during a flood event and generally coincides with the main channel of the stream. These areas must be kept free from encroachment to avoid impacts to flood flows that would change the base flood elevation and velocity.

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### **3.6.1 Regulatory Context**

Federal actions potentially affecting floodplains are required to be evaluated under the provisions of 44 C.F.R. Part 9, "Floodplain Management and Protection of Wetlands," which is under the authority of FEMA. In addition, the policies and procedures of the FHWA regarding the impact of projects on floodplains are found in "Location and Hydraulic Design of Encroachments on Floodplains," 23 C.F.R. Part 650, Subpart A.

Through the National Flood Insurance Program (NFIP), FEMA produces Flood Insurance Studies (FIS) that identify areas of flood risk and provides detailed flood elevation data for streams and other waterbodies within each community. A 100-year floodplain, or SFHA, is defined as a floodplain that has a one percent chance of flooding in any given year. The SFHA comprises the floodway, which in most cases approximates the water course, and the "floodway fringe" that exists outside the main channel. Federal regulations establish stringent standards regarding where development is permitted and prohibited in these areas. In conjunction with the NFIP, these standards are enforced through local zoning and subdivision regulations. For those projects that are exempt from municipal review, these regulations are enforced in Vermont through the Vermont Flood Hazard Area and River Corridor Permit, as applicable.

Zoning and Subdivision Regulations for the Town of Middlebury were adopted effective December 8, 2008 and amended through August 19, 2014. For activities

subject to Town jurisdiction, Sections 660 and Section 670 of these regulations concern floodplain and floodway criteria.

Section 660, "Shorelands, Riparian Buffers and Fluvial Erosion Hazard Areas," regulates these specific areas and identifies them as abutting all perennial streams shown on the Town Maps. Fluvial Erosion Hazard (FEH) areas are designated by DEC for perennial streams for the purpose of limiting the amount of infrastructure and other development built in areas at risk from the potential lateral movement of these streams. Section 670, "Special Flood Hazard Area Regulations," includes reference to the Federal and state provisions for compliance with the requirements of the NFIP.

DEC uses the FEH as the central component of the River Corridor concept, which encompasses a larger area that includes a 50-foot buffer on either side of the FEH. Where applicable, River Corridors are regulated by DEC through the Vermont Flood Hazard Area and River Corridor Permit.

Because the Proposed Action is Federally preempted from state or local regulation or permitting, components of the local bylaw related to FEH areas and components of the state permit related to River Corridors are not applicable because they do not have a corresponding Federal permit. However, requirements of 44 C.F.R. Part 9 to avoid impacts to the floodplain and floodway are not exempted by the ICCTA and must be addressed through the applicable components of the Flood Hazard Area and River Corridor Permit.

For activities subject to State of Vermont jurisdiction, the Vermont Stream Alteration Rule (Environmental Protection Rules, Chapter 27) is applicable to projects that involve the movement, fill, or excavation of more than ten cubic yards of in-stream materials below OHW and for projects involving the construction or maintenance of a berm in a flood hazard area or river corridor.

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### **3.6.2 Methodology**

The effects of the Proposed Action on the SFHA were determined by comparing the limits of FEMA-designated floodplains within the Study Area to the limits of work for the Proposed Action. Where the Proposed Action limits of work occur in the FEMA-designated SFHA, the nature of the proposed work was analyzed to determine if any of the proposed activities would result in the placement of fill within the limits of the regulated area.

To accurately assess whether placement of fill would occur within the regulated area, a floodplain surface was created using computer-aided design and drafting (CADD) software that interpolated the base flood elevation throughout the Study Area using

the regulatory base flood elevations from each cross section included in the FIS. Specific fill volumes within the SFHA were determined by evaluating cross sections of the Proposed Action along the river corridor with those site-specific base flood elevations.

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### 3.6.3 Affected Environment

The Otter Creek is the only surface water within the Study Area, flowing northerly and generally parallel to the VWRC. Based on the 1985 FEMA Flood Insurance Rate Map (FIRM) for the Town of Middlebury (Map Panel 5000080003A, effective date January 3, 1985), portions of the Study Area are within Zone A, the SFHA associated with the Otter Creek (see **Map 3.6-1**).

The portions of the Study Area that lie within the SFHA are limited to those areas where the Proposed Action is immediately adjacent to the Otter Creek. These areas include portions of the VWRC between the Cross Street Bridge and the Battell Block (upstream from the Falls) and the access road that is needed to install the stormwater outfall in the Marble Works Riverfront Park (downstream from the Falls).

Because of the linear nature of the Proposed Action and the fact that it generally parallels the Otter Creek, the elevation associated with the SFHA varies through the Study Area to correspond to the FEMA FIS 100-year flood profile of the Otter Creek. At the upstream end of the Study Area near the Otter Creek Truss Bridge (No. 239), the SFHA is predicted to have an elevation of 349.5 feet (NAVD 88), which is approximately equal to the track elevation at that location. The SFHA decreases to an approximate elevation of 346.0 feet near the Battell Block (approximately 2 feet above the track elevation) and then to an approximate elevation of 323.5 feet downstream from the Falls. The remainder of the VWRC track between the Cross Street Bridge and the Battell Block is above the base flood elevation and outside of the SFHA.

Flood flows in the Otter Creek between the Cross Street Bridge and the Otter Creek Falls are confined within the channel, *i.e.*, there is no floodway fringe beyond the streambank through this reach. Between the Cross Street Bridge and the Otter Creek Truss Bridge (No. 239), an area of floodway fringe is mapped along the meander bend but does not directly abut the track. Downstream from the Falls, the Flood Boundary and Floodway map shows a narrow area of floodway fringe along each side of the channel. The remainder of the Study Area lies outside the SFHA.

### **3.6.4 Environmental Consequences**

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#### **3.6.4.1 No Action**

Under the No Action Alternative, neither the stormwater outfall nor the permanent floodplain fill for its access road at Marble Works Riverfront Park would occur, thus the extent of the floodplains in the Study Area would remain unchanged.

#### **3.6.4.2 Proposed Action**

As described in previous sections, the principal stormwater outfall for the Proposed Action would be located north or downstream of the Otter Creek Falls. The drainage system that connects the Proposed Action area to the outfall on the bank of the Otter Creek would be installed by microtunneling through bedrock to avoid excavation between the Proposed Action area and the Marble Works Riverfront Park. Construction access to the outfall location is not possible from above due to the steep bank. An access road is therefore required to be constructed along the north (right) bank of the Otter Creek to the outfall location. Here, a crane can be positioned to install a pre-cast concrete headwall at the downstream end of the drainage pipe. This access road would be 16 feet in width for construction access. Following construction the road would be removed and the area restored to preconstruction conditions. The construction of the outfall will result in the placement of fill material within the SFHA for the Otter Creek.

Encroachment on the Otter Creek's SFHA for the purposes of installing the stormwater outfall would be minimized by using an existing path for the temporary access road to the greatest extent feasible. Avoidance would require cutting into and retaining the steep bank at Riverfront Park.

A temporary access road will also be constructed along the bank of the Otter Creek south of the Battell Block. This road is required to provide access to the parking lot of the Battell Block during construction. This access road will approach from Water Street to the south, running along the east side of the VWRC track until a point just south of the Cross Street Bridge, where it will make a temporary at-grade railroad crossing and continue north along the west side of the track to the parking lot. This road will result in minor encroachment on the SFHA for the Otter Creek. Although the fill in this area would be located within the floodway, the proposed fill would occur only outside of the channel (and above the elevation of the OHW) and would involve a minor amount of fill relative to the overall volume of the channel. Furthermore, this fill would be temporary in duration, and the original grades would be restored once construction is complete.

On November 15, 2016 a site visit was conducted with DEC Rivers Program staff including Rebecca Pfeiffer, Floodplain Manager/Assistant NFIP Coordinator; Brayton West, Floodplain Manager; and Jaron Borg, River Management Engineer. It was noted at that time that a review would be necessary to determine if the proposed access roads would result in any changes to the base flood elevation at and downstream of the Proposed Action location and, if so, how such change would potentially affect downstream resources. The temporary fill in the floodway upstream from the Battell Block was also discussed during this site visit. Based on the field conditions, DEC representatives indicated that this fill could be consistent with the NFIP and 44 C.F.R. Part 9, so long as the changes to the base flood elevation were supported by appropriate analytical methods.

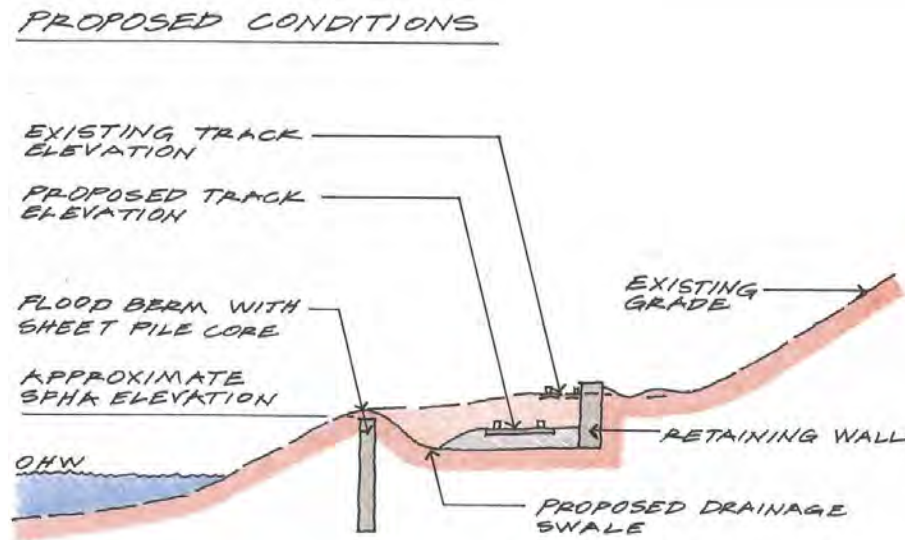
The SFHA fill from the Proposed Action was evaluated using a step-backwater flood model (HEC-RAS version 4.1) to determine the extent of its potential effects. The hydraulic analyses performed as part of this work calculates a maximum rise of 0.01 feet in the temporary construction condition and in the proposed permanent condition, compared to the No Action Alternative. This rise occurs entirely within the Project Area and the model indicates a rise of 0.00 feet at the upstream and downstream limits of the model. A full description of the hydraulic analysis and HEC-RAS modeling is included in **Appendix C**.

The Proposed Action is Federally preempted from regulation or permitting under the River Corridor component of the Vermont Flood Hazard Area and River Corridor Permit and Section 660 of the Town Regulations. However, DEC representatives noted that because the access road proposed for north of the Otter Creek Falls would take place in an area that has been improved previously, it therefore does not represent a use that would limit stream migration in the future (*i.e.*, the presence of Riverfront Park represents a land use that would be protected against lateral stream migration). Similarly, the presence of the VWRC track within the river corridor represents an existing transportation use that would be similarly protected. The elements of the Proposed Action within these areas would therefore comply with the requirements of the River Corridor Permit and with Town regulations.

The construction of the floodplain berm will replace an existing landform at comparable elevations along the railroad upstream from the Battell Block, and is necessary to prevent floodwaters from entering the rail corridor and tunnel in areas where they are currently excluded by the higher existing elevation of the ground surface (see **Figure 3.6-1**). Because the Proposed Action involves excavation of the rail bed to lower the track profile and to achieve the required clearance through the tunnel, the base flood elevation might overtop the bank and enter the track corridor at a location where the existing track is above the flood surface. The proposed berm is not a new feature in the landscape that would limit floodwaters from entering areas

that are currently within the SFHA. Rather, the proposed berm would serve to minimize the risk to infrastructure where grading changes were required to meet the objectives of the Proposed Action and would exclude floodwater only from areas where the existing ground surface would be lowered and therefore potentially at risk of flooding.

The existing Otter Creek Truss Bridge (No. 239) that is upstream from the Project Area is not proposed to be altered and therefore limits changes to the track elevation.



**Figure 3.6-1:** Proposed floodplain berm. Graphic by VHB, July 2017.

Because the track surface elevation at the truss bridge is approximately equal to the 100-year flood surface elevation, the potential for floodwaters to enter the track at the upstream end of the Project Area cannot be fully eliminated. Ponded water may temporarily block the tunnel if a larger flooding event were to occur and floodwaters were introduced into the tunnel. However, drainage outlets within the tunnel would convey floodwaters to the proposed stormwater outfall north of the Otter Creek Falls. The proposed berm is therefore limited to protecting against irregularities in the ground surface along the length of the Proposed Action that could allow floodwaters to access the lowered track. The area that would be protected from flooding by the berm is limited to the VWRC ROW and the immediate adjacent areas which the floodplain does not currently access, an overall width of approximately 30 feet.

As described above, the 100-year flood is largely contained within the channel banks in the vicinity of the Project Area. Where a limited amount of floodway fringe does exist along the bank of the Otter Creek, it does not directly abut the track corridor within the Project Area. Thus, the proposed flood berm would not restrict floodwaters from reaching portions of the floodplain that it would have previously reached.

Furthermore, the edge of the railroad ROW coincides with the toe of a bluff that is approximately 20-feet high which precludes the ability of floodwaters to spread out in this direction.

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### **3.6.5 Mitigation and Summary of Effects**

As described above, the Proposed Action will not result in an increase in the 100-year water surface elevation and is in compliance with NFIP standards, thus no mitigation for floodplains is proposed.

Adherence to the final construction plans will be monitored during construction to ensure that fills placed adjacent to the Otter Creek do not exceed the approved quantities. A survey of as-built conditions will be prepared by a licensed land surveyor or professional engineer and will be submitted to the Floodplain Manager when Project construction is complete.

In summary, the Proposed Action would result in no appreciable effect on floodplains or floodways either during or following construction.

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## **3.7 Wildlife and Wildlife Habitat**

This section identifies wildlife resources within, and in the immediate vicinity of, the Study Area and evaluates the potential environmental consequences to these resources that would result from the Proposed Action. Threatened and endangered species are addressed in a separate section (see **Section 3.8** Threatened and Endangered Species).

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### **3.7.1 Regulatory Context**

While the Project is preempted from state permit requirements pertaining to wildlife, the Proposed Action was nevertheless evaluated in terms of applicable state regulations and guidelines for the protection of wildlife. The FWD is responsible for the management and protection of wildlife species that occur in the state during any time of year. The FWD has promulgated various rules for the protection and management of wildlife, most of which pertain to the exploitation of the species rather than their associated habitats. These rules include, but are not limited to, the hunting and trapping of large game species such as the Bear Management Rule, Turkey Rule, Antlerless Deer Permit Numbers and Youth Season Recommendation, and Wildlife Violator Compact Rule. They also include game and fish regulations, including bag limits for birds and fish-take rules to avoid overharvesting.

### 3.7.2 Methodology

Initial screening included desktop review of data available on the ANR Natural Resources Atlas to determine species occurrence and natural resource data, if available, in the vicinity of the Study Area. Fieldwork conducted in 2016 related to threatened and endangered species (see **Section 3.8**) included an inspection of the Merchants Row and Main Street bridges for signs of wildlife usage as well as general observations of wildlife and signs of activity in those portions of the Study Area proposed for tree clearing.

### 3.7.3 Affected Environment

The existing wildlife habitat within the Study Area is composed of deciduous trees and shrubs, scattered primarily between the Otter Creek and the railroad track and at the location of the proposed primary stormwater outfall location north of the Otter Creek Falls. The most common tree species found in Middlebury include maple (*Acer*), apple (*Malus*), ash (*Fraxinus*), honey locust (*Gleditsia*), and elm (*Ulmus*) (The Vermont Urban and Community Forestry Program and University of Vermont Land Stewardship Program 2015). Approximately 675 acres of wooded habitat are located within a one-mile radius of the Study Area, accounting for roughly 33 percent of overall land cover. Within and adjacent to the limits of disturbance of the Proposed Action, there is a mix of riparian forest canopy cover, successional shrub and sapling vegetation, and herbaceous ground cover vegetation. Overall on-site vegetation cover is limited to undeveloped portions of the Proposed Action site, where deciduous trees and shrubs grow densely along Otter Creek. Woody vegetation cover includes both native species, as described above, as well as non-native invasive species such as buckthorn (*Rhamnus cathartica*) and honeysuckle (*Lonicera*). The herb stratum likewise consists of a mix of native species and non-native invasive species such as garlic mustard (*Allaria petiolata*) and reed canary grass (*Phalaris arundinaceae*). Observed vegetative cover and the associated available wildlife habitat appeared to be the result of both landscape position (riparian, Champlain Valley second-growth floodplain forest) as well as disturbance-dependent species including non-native invasive plants that are characteristic of urban and suburban areas, roadsides, and unmanaged waste places. The Study Area is located in downtown Middlebury, an environment that contains suitable habitat for animal species commonly found in and adjacent to urban environments.

At least 72 resident and migratory bird species and 8 terrestrial mammal species may occur in the Study Area throughout various times of the year (see **Appendix D**). Migratory and resident bird species, particularly passerines, may nest in and feed on resources provided by trees and shrubs. Migratory species, such as the chimney swift (*Chaetura pelagica*), eastern phoebe (*Sayornis phoebe*), and other insectivorous birds,

may also forage above wooded areas along the Otter Creek. Evidence of woodpecker activity in snags and dying trees observed during two site visits suggests that up to five woodpecker species may occasionally be present in the Study Area, including the hairy woodpecker (*Leuconotopicus villosus*), downy woodpecker (*Picoides pubescens*), red-bellied woodpecker (*Melanerpes carolinus*), pileated woodpecker (*Hylatomus pileatus*), and yellow-shafted flicker (*Colaptes auratus*). Mourning dove (*Zenaida macroura*) and rock pigeon (*Columba livia*) were also observed flying within the Study Area, and rock pigeons were observed roosting beneath the decks of the Merchants Row and Main Street bridges.

The USFWS Information, Planning and Conservation website lists 13 migratory birds of conservation concern that occur in Vermont (**Table 3.7-1**), however, no suitable habitat for these species occurs in the Study Area.

**Table 3.7-1. Migratory avian species of concern and the seasons in which they occur in Vermont from the USFWS's Information, Planning and Conservation database.**

Species	Scientific Name	Season(s) Present
American bittern	<i>Botaurus lentiginosus</i>	summer (breeding)
bald eagle	<i>Haliaeetus leucocephalus</i>	year-round resident
black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	summer (breeding)
black-crowned night heron	<i>Nycticorax</i>	summer (breeding)
Canada warbler	<i>Cardellina canadensis</i>	summer (breeding)
common tern	<i>Sterna hirundo</i>	summer (breeding)
olive-sided flycatcher	<i>Contopus cooperi</i>	summer (breeding)
peregrine falcon	<i>Falco peregrinus</i>	summer (breeding)
pie-billed grebe	<i>Podilymbus podiceps</i>	summer (breeding)
prairie warbler	<i>Setophaga discolor</i>	summer (breeding)
short-eared owl	<i>Asio flammeus</i>	summer (breeding)
willow flycatcher	<i>Willow flycatcher</i>	summer (breeding)
wood thrush	<i>Hylocichla mustelina</i>	summer (breeding)

The Otter Creek is a major stream that passes through Middlebury and flows within portions of the Study Area to the west of the VWRC track. The Otter Creek and its shoreline may be used by a variety of semi-aquatic mammals for feeding, hunting, breeding and resting. Such species include beaver (*Castor canadensis*), mink (*Mustela vison*), river otter (*Lutra canadensis*) and muskrat (*Ondatra zibethical*). Numerous fish species may also occur in the Otter Creek, including brook trout (*Salveninus fontinalus*), brown trout (*Salmo turtta*), predatory muskies (*Esox masquinongy*) and flathead minnow (*Pimephales promelas*) (see **Appendix D**).

The shores and floodplain of the Otter Creek likely provide suitable breeding and feeding habitats for a variety of amphibians and reptiles (see **Appendix D**). Frog, salamander, and snake species may occur in the Study Area, while snapping and painted turtles are often observed along the shoreline or on logs in the Otter Creek. Mussel species, such as the eastern lamp mussel (*Lampsilis radiata*) and eastern floater (*Pygandon cataracta*), were identified in the Study Area during surveys (see Mussel Survey, **Appendix D**).

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### 3.7.4 Environmental Consequences

This section describes the environmental consequences of the No Action Alternative and the Proposed Action with respect to wildlife.

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#### 3.7.4.1 No Action

Wooded habitat would be left in place under the No Action Alternative and would likely be used by avian and terrestrial wildlife species. The temporary bridges may provide roosting habitat for rock pigeons and potentially other avian species. No changes in habitat for aquatic or semi-aquatic species is expected to occur under the No Action Alternative.

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#### 3.7.4.2 Proposed Action

##### **Avian and Terrestrial Wildlife Species**

The majority of Proposed Action activities would occur in previously developed areas, therefore overall effects of the Proposed Action on avian and terrestrial species are anticipated to be negligible. The loss of bridge habitat represents a permanent but not a detrimental loss of habitat, as avian and terrestrial wildlife species observed to be frequenting the bridge locations (e.g., rock pigeons) can readily occupy alternative locations. The proposed reestablishment of the original extent of the Village Green after construction may be used by avian and terrestrial species currently found in and adjacent to the Study Area, depending on the final plans for landscape design and plantings, which will be developed in the future with community involvement.

Effects of tree removal may include the incidental take of small rodents or birds that are present during the winter. Tree clearing would also reduce resources available to wildlife throughout the year, though trivially. While tree clearing will reduce available habitat, the amount of clearing (approximately 0.70 acres) is minimal and negligible compared to the remaining wooded area located in close proximity to the Study Area.

Short-term, construction phase adverse effects of the Proposed Action on avian and terrestrial species may include noise, vibration, light, and human disturbance to species within or outside of the Study Area. Effects of the operations phase may result in temporary or permanent displacement, though they are not expected to adversely affect species.

### **Aquatic and Semi-Aquatic Wildlife Species**

The proposed reestablishment of the original extent of the Village Green would create additional surface area landscaped with grass and plantings. A larger area of plantings is anticipated to improve evapotranspiration and water filtration into the soil, potentially providing minimal improvements for water quality for aquatic and semi-aquatic wildlife species using the Otter Creek (Gerten et al. 2005).

Adverse effects to aquatic and semi-aquatic species during the construction phase may include a temporary fitness reduction (*i.e.*, are less healthy) if additional sediment loading from construction activities runs off into the Otter Creek. Effects may also include displacement or reduced survival rates if debris from construction activities reduces water quality appreciably.

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#### **3.7.5 Mitigation and Summary of Effects**

There would be no appreciable long-term effect on wildlife or wildlife habitat resulting from the Proposed Action. During construction, EPSC measures will be implemented to limit potential effects on aquatic and semi-aquatic species. Conservation measures applicable to threatened and endangered species that may also benefit the non-listed wildlife species discussed in this section is provided in **Section 3.8**. The resulting effects on wildlife and wildlife habitat during construction would be adverse, although short-term and local.

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### **3.8 Threatened and Endangered Species**

This section documents Federally-listed and state-listed threatened and endangered species in the immediate vicinity of the Study Area and evaluates the potential environmental consequences to these species resulting from the Proposed Action.

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#### **3.8.1 Regulatory Context**

The Federally-listed threatened and endangered species discussed in this section receive Federal and/or state protection through legislation enforced by the USFWS and the FWD.

Federally-endangered species receive protection under the Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. §§ 1531-1544). This Act defines an endangered species as one that is in danger of extinction throughout all or a substantial portion of its range. A Federally-threatened species is one that is likely to become endangered in the foreseeable future (USFWS 2015). The Final 4(d) Rule of the ESA “directs the USFWS to issue regulations deemed ‘necessary and advisable to provide for the conservation of threatened species.’ It allows the Service to promulgate special rules for species listed as threatened that provide flexibility in implementing the ESA” (USFWS 2016b).

Take prohibitions identified in the Final 4(d) Rule are intended to protect northern long-eared bat (*Myotis septentrionalis*) maternity colonies, hibernating bats, and the areas that this species use as they enter and leave hibernation sites (USFWS 2016b).

In addition to these Federal protections, the Vermont Nongame and Natural Heritage Program (VTNNHP) of the FWD defines an endangered species as one that is in immediate danger of becoming extirpated from the State. The VTNNHP defines a threatened species as one with a high probability of becoming state-endangered in the near future. Such species receive protection under the Vermont Endangered Species Law (10 V.S.A. Ch. 123). The VTNNHP maintains a database of rare, threatened and endangered species in Vermont.

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### 3.8.2 Methodology

Online databases maintained by ANR were reviewed to determine if any known occurrences of threatened and endangered species are mapped within or in the vicinity of the Study Area. This review determined that there are no previously mapped occurrences of terrestrial threatened or endangered species, a finding consistent with the Proposed Action’s setting being largely developed. However, the review determined that there are two previously mapped occurrences of freshwater mussels in the Otter Creek near the Study Area: the rare Creek Heelsplitter (S2 ranking, rare in Vermont) and the state-endangered fluted-shell (no Federally-listed mussel species are present within the Champlain Valley of Vermont). Accordingly, a freshwater mussel survey was performed by Ethan Nedeau of Biodrawiversity LLC to ascertain whether the fluted-shell or other protected mussel species are present in the vicinity of the proposed access road downstream of the Otter Creek Falls and at the proposed stormwater outfall upstream of the Falls near the Cross Street Bridge pier (see **Appendix E**).

A review of the USFWS Information for Planning and Conservation (IPaC) database determined that the Federally-listed threatened and state-listed endangered northern long-eared bat (*Myotis septentrionalis*) and the state and Federally-listed endangered

Indiana bat (*M. sodalis*) may be present within or near the Study Area. Through consultations with FWD personnel, the bridge-roosting habitat of the state-endangered little brown bat (*M. leibei*) was also noted.

Field evaluations were conducted in 2016 to locate potential habitat for, and to determine presence or probable absence of, these listed bats. A bat habitat assessment was conducted in the Study Area using criteria outlined in the Preliminary Bat Assessment Guidelines for Bridges/Structures (FHWA et al. 2016), The Range-Wide Indiana Bat Summer Survey Guidelines (USFWS 2016a), and The Draft Northern Long-Eared Bat Land Use Guidelines for Protecting Northern Long-Eared Bats and Their Habitats (FWD 2016) in order to identify potential roost trees (PRTs). Acoustic monitoring and exit surveys were also conducted at the Main Street and Merchants Row bridges using USFWS- and FWD-approved protocols.

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### 3.8.3 Affected Environment

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#### 3.8.3.1 Bats

Field inspections identified a total of 31 PRTs (see **Map 3.8-1**) and potential roosting locations situated beneath the decks of the Merchants Row and Main Street bridges, which were created by poor concrete conditions and advanced deterioration. Acoustic monitoring and exit surveys performed at the bridge locations determined the likely presence of the Indiana bat, northern long-eared bat, little brown bat (*M. lucifugus*) and potentially the eastern small-footed bat (*M. leibei*) in the Study Area.

The Indiana bat (Federally- and state-endangered), northern long-eared bat (Federally- threatened and state-endangered), the little brown bat (state-endangered) and potentially the eastern small-footed bat (state-endangered) were observed emerging from the Merchants Row and Main Street bridges during the 2016 surveys. One call sequence recorded during the 2016 acoustic monitoring surveys could only be identified to the northern long-eared bat/eastern small-footed bat guild instead of a species due to call similarities. These species generally hibernate in caves and mines in the winter and can be found roosting in natural or human-made structures during the summer. The main threat to the Indiana bat, northern long-eared bat, and little brown bat is White-Nose Syndrome (*Pseudomyces destructans*; WNS).

The following paragraphs provide a brief overview of the four bat species noted above.

#### Indiana Bat

The Indiana bat occurs throughout eastern Oklahoma and Iowa, the Ozark region north and east to Michigan, New York, New England, and northern New Jersey and

south to northern Alabama and Arkansas, with irregular occurrences outside this range (USFWS 2016c). The species was listed endangered under the ESA in 1967 due to large fatality events related to human disturbance during hibernation (USFWS 2011) and is currently listed as endangered in Vermont (FWD 2015a).

### **Northern Long-Eared Bat**

The northern long-eared bat occurs throughout most of the eastern and north central United States, Canadian provinces from the Atlantic coast west to the southern Northwest Territories, and eastern British Columbia (USFWS 2016d). The species was listed threatened under the ESA on April 2, 2015. The Final 4(d) Rule was published by the Federal Register on January 14, 2016 (Federal Register 2016), allowing specific management actions to be exempt from the regulatory prohibited "take" (USFWS 2013). The species also receives protection under Vermont's Endangered Species Law.

### **Little Brown Bat**

The little brown bat is found throughout the northern U.S. into Canada. It is less abundant in the southern U.S. and is absent from the southern Great Plains. Little brown bats also occur in high-elevation forests in Mexico (National Wildlife Federation 2017). The little brown bat is state-endangered in Vermont (FWD 2015a) and frequently observed utilizing human-made structures for both hibernation and maternity sites (FWD 2015a). The species migrates to hibernacula in Vermont and in neighboring states. This species has been historically documented at most known bat hibernacula in Vermont (FWD 2015a). The little brown bat receives protection under Vermont's Endangered Species Law.

### **Eastern Small-Footed Bat**

The eastern small-footed bat occurs throughout Canada and the eastern U.S., although occurrences are spread out and observations are typically in small numbers (International Union for Conservation of Nature - IUCN 2016). The species can be found along talus slopes and exposed cliff faces during the summer, although it is associated with dams in Vermont (FWD 2015a). The eastern small-footed bat has not been affected by WNS to the same degree as other *Myotis* bats (FWD 2015a). The species also receives protection under Vermont's Endangered Species Law.

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#### **3.8.3.2. Mussels**

The fluted-shell occurs in the Mississippi River drainage south to northern Alabama, Louisiana, Georgia, and Mississippi as well as in the Great Lakes Region (O'Brien 2002). In Vermont, the species is primarily found in tributaries of Lake Champlain.

The species appears to be stable in portions of its geographic range (O'Brien 2002), although it is listed state-endangered in Vermont (FWD 2015a).

Only one occurrence of the fluted-shell was observed during the freshwater mussel survey, and it was located outside of the limits of disturbance for the Proposed Action (see **Appendix E**).

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### **3.8.4 Environmental Consequences**

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#### **3.8.4.1 No Action**

##### **Bats**

Under the No Action Alternative, the temporary bridges are installed in accordance with the Emergency Declaration and order issued on March 23, 2017. This declaration resulted in the immediate implementation of exclusionary measures in the Main Street and Merchants Row Bridges on March 27, 2017. Under this assumption, no effects on listed bat species are anticipated under the No Action Alternative.

##### **Mussels**

No effects on listed mussel species are anticipated under the No Action Alternative.

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#### **3.8.4.2 Proposed Action**

##### **Bats**

The overall effects of the Proposed action on listed bat species include habitat loss in the form of PRTs. The overall effect determination for the Proposed Action is that the Proposed Action is unlikely to adversely affect the Indiana and northern long-eared bats for the following reasons:

- the amount of tree clearing (approximately 0.7 acres) represents just 0.09 percent of the wooded acreage within a mile of the Proposed Action and PRTs will be felled in accordance with time-of-year restrictions; and
- sufficient naturally occurring and supplemental alternate roost sites are available in close proximity to the Project Area.

Adverse effects during construction may include disturbance to bats in the area from increased light, noise, vibrations, air blasts, and human activity associated with construction.

## **Mussels**

The Proposed Action is not anticipated to have an effect on the fluted-shell mussel, as the species was not observed within the proposed limits of disturbance.

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### **3.8.5 Mitigation and Summary of Effects**

There would be no appreciable long-term effect on threatened and endangered species resulting from the Proposed Action. Mitigation measures pertaining to state and Federally-listed bat species will be implemented to offset anticipated minor effects. These measures include additional pre-construction investigative surveys, adherence to time of year restrictions for PRT clearing, the installation of artificial roost sites, and revegetation of riparian areas. During construction, short-term, local adverse effects on threatened and endangered species would be anticipated. However, given the mitigation measures described above, these impacts would be minor.

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## **3.9 Air Quality**

This section documents the applicability of Federal and state air quality regulations and assesses the potential environmental consequences to regional air quality resulting from the No Action Alternative and Proposed Action.

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### **3.9.1 Regulatory Context**

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#### **3.9.1.1 National Ambient Air Quality Standards**

The air quality statutes and regulations that are applicable to the Proposed Action include the 1990 Clean Air Act Amendments (CAAA) and the National Ambient Air Quality Standards (NAAQS). The CAAA is the basis for most Federal air pollution control programs. The purpose of the CAAA is to preserve air quality and protect the public's health and welfare. Under the authority of the CAAA, the EPA regulates air quality nationally. EPA delegates authority to the DEC for monitoring and enforcing air quality regulations in the State of Vermont. Conformity with the State Implementation Plan is not assessed in this analysis because the Proposed Action is located in Addison County, which is designated by the EPA as in attainment (*i.e.*, in compliance with applicable standards) for all criteria pollutants. Therefore, this area is exempt from conformity requirements.

Under authority of the CAAA, the EPA established the NAAQS that define allowable limits for atmospheric concentrations of various criteria air pollutants including particulates. Primary standards are established at levels designed to protect the public health. Secondary standards are established at levels designed to protect the public welfare by accounting for the effects of air pollution on vegetation, soil, materials, visibility, and other aspects of the general welfare.

The EPA has set the NAAQS for criteria pollutants to protect the public health and welfare. **Table 3.9-1** presents the NAAQS for these pollutants, each of which are described below.

### **Description of Criteria Pollutants**

Air pollution is of concern because of its demonstrated effects on human health. Of special concern are the respiratory effects of the criteria pollutants and their potential toxic effects:

**Table 3.9-1 National Ambient Air Quality Standards**

Pollutant	Averaging Period	Primary Standard	Secondary Standard	Form
Carbon Monoxide (ppm)	8-hour	9	-	Not to be exceeded more than once per year
	1-hour	35	-	
Nitrogen Dioxide (ppb)	1-hour	100	-	98 <sup>th</sup> percentile of daily maximum concentrations, averaged over 3 years
	Annual <sup>a</sup>	53	53	Annual Mean
Ozone (ppm)	8-hour <sup>b</sup>	0.070	0.070	Annual 4 <sup>th</sup> highest daily maximum concentration, averaged over 3 years
Particulate Matter 2.5 (µg/m <sup>3</sup> )	Annual	12	15	Annual mean, averaged over 3 years
	24-hour	35	35	98 <sup>th</sup> percentile, averaged over 3 years
Particulate Matter 10 (µg/m <sup>3</sup> )	24-hour	150	150	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (ppb)	1-hour <sup>c</sup>	75	-	99 <sup>th</sup> percentile of daily maximum concentrations, averaged over 3 years
	3-hour	-	0.5	Not to be exceeded more than once per year
Lead (µg/m <sup>3</sup> )	3-month average <sup>d</sup>	0.15	0.15	Not to be exceeded

Source: US Environmental Protection Agency

<sup>a</sup> The level of the annual NO<sub>2</sub> standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

<sup>b</sup> Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O<sub>3</sub> standards additionally remain in effect in some areas. Revocation of the previous (2008) O<sub>3</sub> standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

<sup>c</sup> The previous SO<sub>2</sub> standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO<sub>2</sub> standards or is not meeting the requirements of a SIP call under the previous SO<sub>2</sub> standards (40 C.F.R. §50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

<sup>d</sup> In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m<sup>3</sup> as a calendar quarter average) also remain in effect.

(ppm) – parts per million; (ppb) – parts per billion; (µg/m<sup>3</sup>) – micrograms per meter cubed

**Carbon monoxide (CO).** CO is a colorless and odorless gas that is a product of incomplete combustion. CO is absorbed by the lungs and reacts with hemoglobin to reduce the oxygen carrying capacity of the blood. At low concentrations, CO has been shown to aggravate the symptoms of cardiovascular disease. It can cause headaches, nausea, and at sustained high concentration levels, can lead to coma and death.

**Nitrogen Dioxide (NO<sub>2</sub>).** When combustion temperatures are extremely high, such as in engines, atmospheric nitrogen gas may combine with oxygen gas to form various oxides of nitrogen. Of these, nitric oxide (NO) and NO<sub>2</sub> are the most significant air pollutants. This group of pollutants is generally referred to as nitrogen oxides (NO<sub>x</sub>). Nitric oxide is relatively harmless to humans but quickly converts to NO<sub>2</sub>. NO<sub>2</sub> has been found to be a lung irritant and can lead to respiratory illnesses. Nitrogen oxides, along with VOCs, are also precursors to ozone formation.

**Ozone (O<sub>3</sub>).** O<sub>3</sub> is a highly reactive compound of oxygen. At very high concentrations O<sub>3</sub> appears blue in color, is a highly unstable gas and is pungent in odor. At ambient concentrations, O<sub>3</sub> is colorless and odorless. O<sub>3</sub> is not emitted directly into the atmosphere by pollutant sources, but instead is produced by an atmospheric reaction of NO<sub>x</sub> and VOCs. Generally, this reaction is most favorable during the warmer summer months when sunlight is stronger. Exposure to O<sub>3</sub> may impair lung function and cause respiratory difficulties to sensitive populations (for example a person with asthma, emphysema or reduced lung capacity).

**Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>).** Particulate matter is made up of small solid particles and liquid droplets. PM<sub>10</sub> refers to particulate matter with a nominal aerodynamic diameter of 10 micrometers or less, and PM<sub>2.5</sub> refers to particulate matter with an aerodynamic diameter of 2.5 micrometers or less. Particulates can enter the body through the respiratory system. Particulates over 10 micrometers in size are generally captured in the nose and throat and are readily expelled from the body. Particles smaller than 10 micrometers, and especially particles smaller than 2.5 micrometers, can reach the air ducts (bronchi) and the air sacs (alveoli) in the lungs. Particulates, especially PM<sub>2.5</sub>, are associated with increased incidence of respiratory diseases, cardiopulmonary disease, and cancer.

**Sulfur Dioxide (SO<sub>2</sub>).** SO<sub>2</sub> emissions are the main components of the “oxides of sulfur,” a group of highly reactive gases from fossil fuel combustion at power plants, other industrial facilities, industrial processes, and burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. High concentrations of SO<sub>2</sub> will lead to formation of other sulfur oxides. By reducing the SO<sub>2</sub> emissions, other forms of sulfur oxides are also expected to decrease. When oxides of sulfur react with other compounds in the atmosphere, small particles that can affect the lungs can be formed. This can lead to respiratory disease and aggravate existing heart disease.

**Lead (Pb).** Pb is a heavy metal that can affect the nervous system, kidneys, immune system, reproductive system and cardiovascular system when exposed to substantial doses. Pb is emitted through some heavy industrial manufacturing processes, especially those associated with metal processing. The addition of Pb to fuel increases engine performance and reduces valve wear; however, general use of Pb as a fuel additive has been phased out for on-road vehicles in the U.S. Since this phase out, Pb concentrations in ambient air are often low. States with no significant lead emitting sources typically do not measure Pb at their ambient air monitoring stations.

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### 3.9.1.2 Mobile Source Air Toxics

Most air toxics originate from human-made sources, including onroad mobile sources, nonroad mobile sources (*e.g.*, airplanes), area sources (*e.g.*, dry cleaners) and stationary sources (*e.g.*, factories or refineries). Controlling air toxic emissions became

a national priority with the passage of the CAAA, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants.

The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System (IRIS) (<https://www.epa.gov/iris>). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA) (<https://www.epa.gov/national-air-toxics-assessment>). These are 1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics (MSAT), the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOVES2014a model, even if VMT increases by 45 percent from 2010 to 2050 as forecast, a combined reduction of 91 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect environmental documents to address MSAT impacts. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

### **3.9.2 Methodology**

A traffic capacity analysis was not conducted as traffic volumes and patterns are not expected to change as a result of the Proposed Action. Therefore, there would be no change in roadway emissions between the No Action and Proposed Action conditions. Accordingly, no modeling of air quality conditions was not conducted. The analysis includes an evaluation of DEC monitoring results to demonstrate that there are no air quality concerns.

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#### **3.9.2.1 Ambient Air Quality Concentrations**

In response to the Clean Air Act, DEC has established a statewide air quality monitoring network. Air quality monitoring is primarily carried out to determine:

- The highest pollutant concentrations expected to occur in an area;
- Representative concentrations in areas of high population density;
- The effects on ambient concentrations by significant sources;
- The general background concentrations;
- The effect of regional transport; and
- Welfare-related effects such as effects on visibility and vegetation.

Data for most current background air quality concentrations for the Project Area were obtained from the *Vermont Annual Air Monitoring Network Plan 2016* (DEC 2016). Concentrations were chosen from the monitoring location closest to the Project Area (the Burlington monitoring site if available, otherwise the Underhill monitoring site).

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#### **3.9.2.2 Mobile Source Air Toxics**

The air quality study evaluated the potential for impact due to MSAT, as required in the FHWA Division interim guidance (dated October 18, 2016) on how to analyze MSAT for NEPA documents. No analysis is required for a project that qualifies as a categorical exclusion under 23 C.F.R. 771.117 (c), is exempt under the Clean Air Act conformity rule under 40 C.F.R. 93.126, or is a project with no meaningful impacts on traffic volumes or vehicle mix.

A quantitative MSAT analysis is not required for the Proposed Action because it is not a project of air quality concern and does not meet FHWA's criteria. The Proposed Action also does not create or substantially alter any major intermodal freight facility and it does not create new or add substantial capacity to any roadway with an AADT in the range of 140,000 to 150,000, or greater. The Proposed Action does not meet any of the criteria for a quantitative analysis for MSAT.

### 3.9.3 Affected Environment

The 2016 background concentrations for the Project Area are presented in **Table 3.9-2** as provided by DEC.

**Table 3.9-2 Ambient Air Quality Concentrations**

Pollutant	Units	Averaging Period	Monitor Location	Ambient Concentration	NAAQS Standard
Carbon Monoxide	ppm	8-hour	Burlington	0.5	9
	ppm	1-hour	Burlington	0.8	35
Nitrogen Dioxide	ppb	1-hour	Burlington	34.0	100
	ppb	Annual	Burlington	6.5	53
Ozone	ppm	8-hour	Underhill	0.062	0.070
Particulate Matter 2.5	µg/m <sup>3</sup>	Annual	Burlington	6.3	12
	µg/m <sup>3</sup>	24-hour	Burlington	15.0	35
Particulate Matter 10	µg/m <sup>3</sup>	24-hour	-	-	150
Sulfur Dioxide	ppb	1-hour	Underhill	2.0	75
Lead	µg/m <sup>3</sup>	3-month average	N/A	N/A	0.15

Source: Vermont Annual Air Monitoring Network Plan 2016 DEC.  
“-” – Design value not stated; N/A- Pollutant not monitored.

The EPA assesses an area's attainment of the NAAQS by classifying the area under four designations: Attainment, Non-Attainment, Maintenance and Unclassifiable. An Attainment designation occurs when an area's ambient air concentrations are below the respective NAAQS. Non-Attainment areas have ambient air concentrations of criteria pollutants that are greater than the NAAQS. A Maintenance designation indicates that an area has recently achieved Attainment after being previously designated as a Non-Attainment area. An Unclassifiable designation specifically refers to an area where insufficient data exists to make a determination as to Attainment or Non-Attainment. Unclassifiable areas are generally treated as Attainment areas. Every county of Vermont is designated as Attainment for all criteria pollutants. As such, the Project is not subject to a conformity determination.

### 3.9.4 Environmental Consequences

#### 3.9.4.1 No Action

There would be no changes to the ambient air quality conditions in the Study Area under the No Action Alternative. Under the No Action Alternative, increased traffic is projected over time (see **Section 3.2**). However, emissions improvements on vehicles

and fleet improvements may result in improvements in air quality. Air quality will continue to be monitored by the DEC.

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#### **3.9.4.2 Proposed Action**

##### **Roadway Emission Sources**

As discussed in **Section 3.2**, the Proposed Action will replace existing infrastructure and there are no anticipated traffic capacity improvements for vehicles. As such, there would be no adverse air quality impact as it relates to roadway emission sources.

##### **Train Emission Sources**

Potential air quality impact is assessed by comparing the train operations under the No Action scenario to operations under the Proposed Action. The Proposed Action would not change existing rail operations through the Project Area. Despite the change in railroad track vertical profile necessitated by the track lowering, the use of additional locomotives to move typical current freight loads through Middlebury is not anticipated. Considering the relatively unchanged train operations of the Proposed Action, there would be no adverse air quality impact as it relates to train emission sources. Additionally, future fleet improvements may result in decreased locomotive emissions.

#### **Construction (Short-Term) Effects**

The Proposed Action will comply with all regulations that pertain to construction activities and the protection of air quality. Construction of the Proposed Action is expected to last for four years with principal construction occurring during a two-year period. Pollutant emissions will occur from construction equipment utilizing combustion engines. Fugitive dust emissions will occur during land disturbing activities. Adverse construction-related air quality impacts are anticipated to be minor and temporary in nature. The Proposed Action will employ multiple mitigation measures to reduce the potential for air quality impact during the construction phase as discussed in **Section 3.9.5**.

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### **3.9.5 Mitigation and Summary of Effects**

The contractor will be required to adhere to all applicable regulations regarding controls of construction vehicle emissions. This will include, but is not limited to, maintenance of all motor vehicles, machinery, and equipment associated with construction activities and proper fitting of equipment with mufflers or other regulatory-required emissions control devices. Additionally, construction specifications will require that all diesel equipment used on-site will be fitted with

their original manufacturer's engine emission controls such as oxidation catalysts or diesel particulate filters.

During construction, soil would need to be temporarily disturbed, and handling contaminated soil may generate dust, which would have an adverse impact nearby public spaces. The Contractor will be responsible for protective measures around the construction and demolition work to protect pedestrians and prevent dust and debris from leaving the site or entering the surrounding community. EPSC measures and inspections shall be conducted in accordance with the Proposed Action's construction phase stormwater discharge permit. In accordance with these EPSC measures, dust control will be completed with the application of amended water in areas where dust may be generated. Dust generated from earthwork and other construction activities like stockpiled soils will be controlled by spraying with water to mitigate wind erosion on open soil areas. Other dust suppression methods will be implemented to ensure minimization of the off-site transport of dust. Construction entrances shall be regularly maintained to control equipment and vehicles from tracking materials off-site and to prevent dust generation. There will be regular sweeping of the pavement of adjacent roadway surfaces during the construction period to minimize the potential for vehicular traffic to create airborne dust and particulate matter. Additionally, excavation will be overseen by a qualified Environmental Manager in accordance with the CAP (see **Section 3.17**). The impact would be considered temporary and would be managed under the CAP and mitigated through the use of personal protective equipment for construction workers, EPSC dust control measures, and oversight by the Environmental Manager.

In summary, the Proposed Action would result in no appreciable long-term effect on air quality. The potential for temporary air quality adverse effects is expected during construction, for which mitigation measures will be employed for worker and public safety. With the deployment of the mitigation measures described above, construction phase effects from the Proposed Action on air quality are anticipated to be short-term, local, minor and adverse.

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### 3.10 Noise and Vibration

This section evaluates potential noise and vibration effects from the Proposed Action alternative. Introducing new sources of noise and vibration has the potential to cause impact to humans at noise and vibration-sensitive land uses in the Study Area. This section summarizes the noise and vibration regulatory context of the Project, characterizes the existing noise and vibration conditions in the Study Area, presents the noise and vibration prediction methodologies and relevant impact criteria,

assesses the environmental consequences of the Proposed Action alternative, and evaluates the need to mitigate impacts.

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### **3.10.1 Regulatory Context**

This section presents relevant Federal, state, and local regulations, policies, ordinances, and guidance applicable to the evaluation of potential noise and vibration effects.

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#### **3.10.1.1 Roadway Noise**

FHWA regulation 23 C.F.R. §772 describes the procedures required for highway noise studies to help protect the public health and welfare, to supply abatement criteria, and to establish the requirements for information to be given to local officials for use in the planning and design of highways that are funded or otherwise subject to FHWA approval. This Federal regulation requires VTrans to have a noise policy that implements the requirements of the regulation.

The VTrans *Noise Analysis and Abatement Policy* (effective July 13, 2011) applies to all Federal or Federal-aid Type I highway construction projects. A Type I project is defined as one that includes construction of a highway on new location, the physical alteration of an existing highway that results in substantial horizontal or vertical alterations, the addition of through-traffic lanes, the addition of auxiliary lanes, the addition or relocation of interchange lanes or ramps, restriping to add through-lane capacity, or substantial alterations to toll plaza, and rest stops. Substantial vertical alteration is defined as changes to a highway elevation that would expose line-of-sight between a receptor and the traffic noise sources. The Proposed Action does not meet any of the definitions of a Type I highway project. Therefore, a detailed highway noise analysis for the purposes of meeting FHWA regulation 23 C.F.R. §772 is not required.

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#### **3.10.1.2 Train Noise and Vibration**

The FRA and the EPA have regulations on the noise emissions of locomotives and railcars which railroads are required to meet for operating trains on the general rail network. These regulations include equipment noise limits for locomotives and railcars and requirements for the use of locomotive horns at highway-rail grade crossings.

The Proposed Action would not affect railroad operations as they relate to equipment noise emissions. The Proposed Action could affect site-specific noise and vibration conditions due to improvements to the track infrastructure such as increasing the allowable track speed, replacing jointed rail with continuous welded rail, better

drained trackbed, and introducing a new tunnel section. The Federal Transit Administration (FTA) “Noise and Vibration Impact Assessment” (FTA 2006, “FTA guidance manual”) describes the methods and criteria used to assess potential noise and vibration effects from Federally-funded rail infrastructure projects that are subject to review under NEPA. This guidance manual is similar to the FRA’s “High-Speed Ground Transportation Noise and Vibration Impact Assessment” (FRA 2012), which is used when train operations exceed 90 mph. Further information about the methodology and criteria used to evaluate noise from rail sources is described in **Section 3.10.2**.

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### **3.10.1.3 Construction Noise and Vibration**

Construction activities have the potential to affect noise and vibration-sensitive receptors in the Study Area. Construction activities that generate vibration have the potential to increase the risk of structural damage to nearby buildings. Under Section 106 of the National Historic Preservation Act of 1966, any project receiving Federal funding must be evaluated for its potential effects to historic and archaeological resources. Section 106 review includes evaluation of potential vibration impact that could cause structural damage to those listed in or eligible for listing in the National Register (see **Section 3.12**).

The Town of Middlebury has an ordinance that regulates noise to protect the comfort, repose, health, peace or safety of others within the immediate vicinity of a noise or disturbance. This local noise ordinance generally prohibits construction noise during nighttime hours except as necessary for emergency repairs. Because the Project is not regulated under Town ordinances, this local construction noise prohibition does not apply to the Project.

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## **3.10.2 Methodology**

The methodology used to assess potential noise and vibration impact includes identifying the applicable noise and vibration criteria based on the regulatory context of the evaluation, identifying noise and vibration-sensitive receptors, characterizing the existing noise and vibration conditions in the Study Area, predicting future noise and vibration conditions for the No Action and Proposed Action alternatives, assessing potential environmental consequences and evaluating the need to mitigate potential adverse effects.

Noise and vibration-sensitive land use has been identified by reviewing aerial photography, the Town of Middlebury Planning/Zoning office Geographic Information System (GIS) database and field observations. Ambient sound monitoring

has been conducted to characterize existing noise conditions. Short-term (20-minute) and long-term (24-hour) ambient sound monitoring has been conducted at locations representative of sensitive land use throughout the Study Area. Existing vibration conditions from train operations have been determined based on FTA generalized ground-vibration curves.

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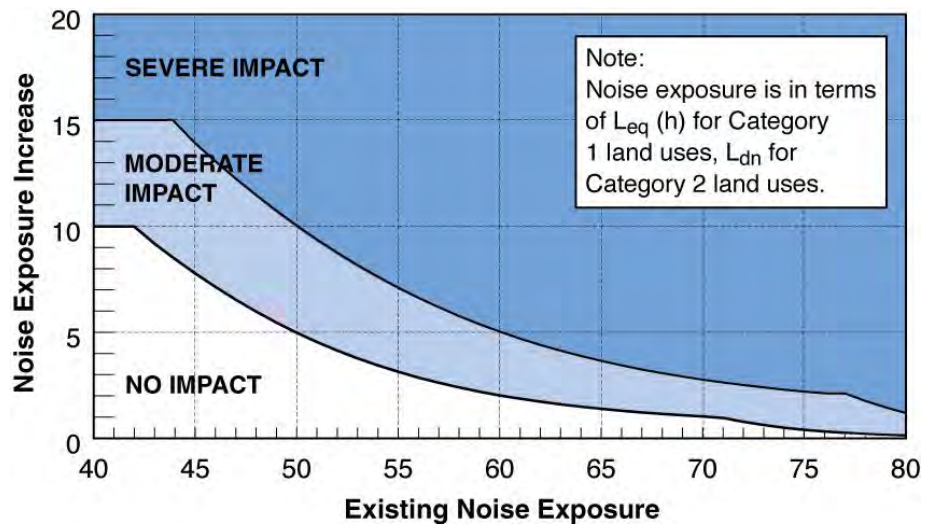
#### **3.10.2.1 Roadway Noise Assessment Methodology**

Roadway noise levels are typically evaluated by conducting noise measurements at sensitive receptor locations and analyzing changes in future traffic conditions such as increased traffic speeds, volumes or percentage of trucks. Since the Proposed Action does not meet any of the definitions of a Type I highway project, no noise analysis is required. For informational purposes, it should be noted that since traffic volumes and roadway alignments under the Proposed Action scenario are equivalent to the No Action Alternative, there would be no change in roadway noise.

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#### **3.10.2.2 Train Noise Assessment Methodology**

Changes in future noise and vibration conditions due to the proposed track infrastructure improvements have been evaluated based on the FTA “General Noise” and “General Vibration” assessment methods in the FTA guidance manual. No Action and Proposed Action day-night average sound levels (Ldn) from train operations have been predicted at the closest receptors in the Study Area. This analysis takes into consideration the typical number of trains per day, whether the noise events occur during the day or night, train speed and track condition. The Ldn is a cumulative noise metric that includes a 10-decibel penalty for noise events that occur during the night (10:00 PM to 7:00 AM). Potential noise impact has been assessed according to the FTA noise impact criteria as shown in **Figure 3.10-1**. Noise impact is assessed by comparing the existing noise exposure to the potential increase in noise due to the proposed track infrastructure improvements.



**Figure 3.10-1** FRA Noise Impact Criteria. Source: FTA, 2006.

### 3.10.2.3 Train Vibration Assessment Methodology

Vibration-sensitive receptors are categorized similarly to noise as it relates to human annoyance from train operations, except parks are not evaluated for vibration impact. Vibration from construction activities that could increase the risk of structural damage is evaluated at all types of buildings and structures regardless of their use. The risk of structural damage from construction vibration depends on the sensitivity of the building material type (*e.g.*, concrete, timber, plaster walls, etc.). Some historic properties are inherently more susceptible to potential structural damage due to their age and the risk tolerance may be lower if it would be more difficult to repair potential damage.

The absolute FTA vibration criterion for human annoyance from train operations is 80 vibration velocity decibels (VdB) for residences, 83 VdB for institutional uses such as places of worship, and 80 VdB for theatres when there are an infrequent number of daily events (fewer than 30 per day). However, when the Proposed Action would relocate or reconstruct existing tracks, the criteria used to assess potential impact also depends on the change in vibration due to the Proposed Action. In many instances, track reconstruction projects can improve existing vibration conditions. In this situation, there would be vibration impact if the Proposed Action would increase vibration more than 3 VdB and future levels would exceed the absolute criterion.

#### 3.10.2.4 Construction Noise Assessment Methodology

There is the potential for construction-period activities to temporarily increase ambient noise and vibration conditions. Potential construction noise effects have been evaluated according to the methods described in the FHWA Roadway Construction Noise Model (RCNM) and the FTA guidance manual. RCNM includes reference noise emissions and acoustic usage factors for equipment commonly used during roadway, track and bridge projects. Construction noise levels have been predicted using Cadna-A software and the RCNM database of emissions. This model takes into account the topography between construction sources and receptors, ground cover and other sound propagation characteristics.

There are no standardized Federal or state construction noise impact criteria and the local ordinance does not apply to the Proposed Action. The FTA has guideline construction noise limits that may be used to evaluate potential effects when there are no state regulations or local noise ordinances. If the FTA construction noise guidelines are exceeded, there may be adverse community reaction.

**Table 3.10-1** presents the FTA Detailed Assessment construction noise guideline limits which are based on the type of land use and whether construction occurs during the day or night. Construction noise is evaluated based on an 8-hour equivalent sound level (Leq) that is representative of a typical work period.

**Table 3.10-1 FTA Construction Noise Guidelines**

Land Use	Daytime 8-hour Leq, dBA	Nighttime 8-hour Leq, dBA
Residential	80	70
Commercial	85	85 <sup>A</sup>
Industrial	90	90 <sup>A</sup>

Source: FTA, 2006.

Notes:

A Nighttime construction noise is typically not evaluated at commercial or industrial receptors unless there is known nighttime use.

Often track or roadway construction projects require nighttime construction to minimize impact on traffic and to reduce the total time that construction disruptions occur. Nighttime construction for the Proposed Action is anticipated for the ten-week closure period, which may include earth and rock excavation, track removal, bridge demolition and tunnel placement.

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### **3.10.2.5 Construction Vibration Assessment Methodology**

Potential effects from construction vibration have been evaluated based on methods described in the FTA guidance manual. The FTA assessment methodology includes identifying the types of vibration-generating construction equipment and predicting typical construction vibration levels at various distances from the equipment. This information will provide a general estimate of construction vibration and the potential to increase the risk of structural damage.

Construction vibration impact criteria as it relates to potential structural damage depends on the building type and condition. VTrans' "Standard Specifications for Construction" (VTrans 2011, incorporated by reference into VTrans' construction contracts) limit ground vibration to between 0.5 and 2.0 inches per second in peak particle velocity (PPV) depending on the frequency of vibration and the type of structure. These PPV vibration limits can also be described according to their approximate vibration decibel level (VdB). The vibration impact criteria of 0.5 to 2.0 in/s is similar to vibration levels of 90 to 114 VdB. FTA vibration criteria range from 0.12 in/s (90 VdB) for the most fragile buildings to 0.5 in/s (102 VdB) for reinforced concrete and steel or timber buildings without plaster. The California Department of Transportation (Caltrans) "Transportation and Construction Vibration Guidance Manual" (Caltrans 2013) includes detailed information on these and other vibration limits.

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## **3.10.3 Affected Environment**

Noise and vibration-sensitive receptors in the Study Area primarily include residences, commercial properties, places of worship, schools, libraries, a theatre and parkland. The Study Area includes buildings and structures that are sensitive to potential structural damage and public parks and recreational areas identified under Section 4(f). Existing sources of noise in the Study Area include vehicular traffic and train operations. Since there are no at-grade highway-rail crossings, the trains do not routinely sound their horn through the Study Area.

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### **3.10.3.1 Existing Noise Conditions**

Short-term ambient sound monitoring was conducted at five sites throughout the Study Area as shown in **Map 3.10-1**. The short-term measurements were conducted during the mid-day period when ambient sound levels were relatively quiet (*i.e.*, not during peak morning or afternoon traffic hours) to provide a conservative estimate of existing levels. The predominant ambient source of sound was roadway traffic and there were no train operations in the Study Area.

As shown in **Table 3.10-2**, the Leq sound levels ranged from 47 A-weighted decibels (dBA) at the end of Water Street which was relatively far away from roadway sources to 71 dBA on Court Street which was relatively close to roadway sources. Ambient daytime sound levels in the CBD, as measured at ST-4 at the front entrance of St. Stephen's Church, was 66 dBA (Leq).

A long-term ambient sound measurement was conducted on the Middlebury Village Green. The ambient sound levels were relatively similar during the daytime, evening and nighttime periods. The typical daytime, evening and nighttime sound levels were 58, 53 and 45 dBA (Leq), respectively. Detailed sound measurement results are provided in the Noise and Vibration Technical Report (**Appendix F**).

**Table 3.10-2 Ambient Sound Monitoring Results Summary**

Site	Location	Time Start	Time End	Leq (dBA)
ST-1	End of Water Street	11:53 AM	12:13 PM	47
ST-2	25 Bakery Lane	12:27 PM	12:47 AM	50
ST-3	18 Court Street	11:20 AM	11:40 AM	71
ST-4	3 Main Street (St. Stephen's Church)	10:46 AM	11:06 AM	66
ST-5	12 Elm Street	1:02 PM	1:22 PM	68
LT-1	Middlebury Village Green	1:00 PM	2:00 PM	58 <sup>A</sup>
		8:00 PM	9:00 PM	53 <sup>B</sup>
		2:00 AM	3:00 AM	45 <sup>C</sup>

Source: VHB, 2017.

Notes:

- A Typical daytime sound level result.
- B Typical evening sound level result.
- C Typical nighttime sound level result (quietest hour).

### 3.10.3.2 Existing Train Noise Conditions

Train noise is evaluated according to day-night average (Ldn) levels which take into account the typical number of trains per day, whether noise events occur during the day or night, train speed and track condition. The following summarizes the principal assumptions for the existing train noise conditions in the Study Area:

- There is typically one train operation during the day (7:00 AM to 10:00 PM) and one during the night (10:00 PM to 7:00 AM);
- A typical freight train includes one diesel-electric locomotive and up to 40 rail cars;
- Existing train speed is 10 mph in the Study Area; and
- The existing track is jointed rail which increases noise and vibration.

Based on these assumptions, existing train noise conditions are estimated to be:

- 67 dBA (Ldn) at receptors 30 feet from the track centerline
- 63 dBA (Ldn) at receptors 50 feet from the track centerline
- 59 dBA (Ldn) at receptors 100 feet from the track centerline

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### **3.10.3.3 Existing Train Vibration Conditions**

The most substantial source of existing ambient vibration is freight train operations on the VWRC. There are approximately two freight trains per day currently operating on the rail corridor at a speed of 10 mph. As described in **Section 1.5**, the existing track is jointed rail. Based on the FTA generalized ground surface vibration curves and standard adjustments for train speed and jointed rail, existing vibration levels are estimated to be:

- 87 VdB at buildings 25 feet from the track centerline
- 85 VdB at buildings 30 feet from the track centerline
- 82 VdB at buildings 50 feet from the track centerline
- 75 VdB at buildings 100 feet from the track centerline

Existing vibration levels may exceed the absolute FTA vibration criterion for residences and theatres within approximately 70 feet of the track and for institutional receptors within approximately 45 feet. Existing vibration levels may exceed the respective FTA limit at six residential buildings including 11 Willard Street, 15 Maple Street, 40 Middle Seymour Street, 36 Seymour Street, 44 Merchants Row (upper-floor apartments), and 76 South Pleasant Street, the Town theatre and two institutional receptors including St. Stephen's Church and the Grace Baptist Church.

The closest buildings to the track are approximately 25 feet (slant distance including horizontal and vertical paths) from the track centerline. At this distance, existing vibration levels are approximately 87 VdB which is below the threshold of potential structural damage for the most-sensitive buildings.

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## **3.10.4 Environmental Consequences**

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### **3.10.4.1 No Action**

Under the No Action scenario, traffic volumes are anticipated to increase over time (see **Section 3.2**). The associated traffic noise levels are anticipated to increase less than 3 decibels in 2038 under the No Action scenario compared to existing conditions. An increase of less than 3 decibels is considered to be an imperceptible

increase in noise Under the No Action scenario, there would be no changes to the rail infrastructure and vibration levels would not change.

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#### **3.10.4.2 Proposed Action**

As discussed in **Section 3.2**, the Proposed Action will not result in any traffic capacity improvements for vehicles or rail traffic and thus no traffic capacity analyses were conducted. Since the Proposed Action does not meet any of the definitions of a Type I highway project, no roadway noise analysis is required. Further, since there would be no change in traffic volumes or speeds, there would be no change in roadway noise due to the Proposed Action.

#### **Train Noise Impact Assessment**

Potential train noise impact is assessed by comparing the existing noise exposure and the potential increase in noise due to the proposed track and tunnel infrastructure improvements on the VWRC. The Proposed Action would not affect the number of train operations along the rail corridor. The height of the proposed tunnel would facilitate double-stack rail transport, would increase the allowable track speed to 40 mph, and would replace jointed rail with continuous welded rail. Although trains would not travel through the Study Area at 40 mph, this speed has been conservatively used in the assessment. The use of double-stack railcars would not affect noise conditions as the primary noise source is the wheel/rail interface. If anything, double-stack freight would reduce the number of railcars needed to transport equal amounts of freight.

The Proposed Action would include a tunnel segment that would attenuate sound to nearby receptors in the CBD. Although the Proposed Action would lower the rail profile, this would not have a substantive effect on noise conditions in the Study Area. Based on these assumptions, the train noise conditions with the Proposed Action, not including sound attenuation due to the tunnel section, are estimated to be:

- 67 dBA (Ldn) at receptors 30 feet from the track centerline
- 63 dBA (Ldn) at receptors 50 feet from the track centerline
- 59 dBA (Ldn) at receptors 100 feet from the track centerline

Train noise levels for the Proposed Action would be the same as those for the No Action condition. This is due to three separate factors: 1) using continuous welded rail would reduce noise, 2) the increase in train speed would increase noise from railcars, and 3) the increase in train speed would decrease noise from the locomotives. Cumulatively, there would be no change in future train noise conditions and there would be no adverse impact according to the FTA noise impact criteria.

### **Train Vibration Impact Assessment**

Based on the FTA generalized ground surface vibration curves in the FTA guidance manual and standard adjustments for train speed and jointed rail, vibration levels for the Proposed Action are estimated to be:

- 88 VdB at buildings 25 feet from the track centerline
- 86 VdB at buildings 30 feet from the track centerline
- 83 VdB at buildings 50 feet from the track centerline
- 76 VdB at buildings 100 feet from the track centerline

Train vibration levels for the Proposed Action would be 1 VdB higher than the No Action condition. This is due to two separate factors; 1) using continuous welded rail would reduce vibration and 2) the increase in allowable train speed would increase vibration. Although the Proposed Action would lower the rail profile, this would not have a substantive effect on vibration emissions.

As described in **Section 3.10.3**, existing train vibration at six residential receptors, the Town theatre and two institutional receptors may exceed their respective FTA vibration criterion for infrequent events. With the Proposed Action, vibration levels may increase by 1 VdB which is not expected to result in a perceptible change in human annoyance. At the closest receptors 25 feet from the tracks, future vibration levels would be approximately 88 VdB which is below the threshold of potential structural damage for even the most vibration-sensitive buildings. Since the Proposed Action would not increase vibration levels by more than 3 VdB, which is the FTA criterion for existing rail corridors, there would be no substantive change to existing vibration conditions and no adverse vibration impact according to assessment methods defined in the FTA guidance manual.

### **Construction Noise Impact Assessment**

The Proposed Action would include several phases of construction such as blasting, microtunneling, rock drilling excavation, support of excavation with soldier pile walls, and track reconstruction.

Noise from blasting operations occurs as brief periods of air overpressure. Common blasting practices require controlling human exposure to blast air overpressure to minimize risk of hearing damage and for general safety reasons. Due to the brief duration of blasting noise, it is not typically assessed for potential human annoyance as is with typical construction equipment. For microtunneling operations, airborne noise is not a substantial factor due to the overburden that exists between the microtunnels and potential noise-sensitive receptors.

For other construction activities including earth and rock excavation, which would include rock drilling or soldier pile wall construction and railroad track reconstruction, noise exposure depends on the specific equipment that operate during each phase, the acoustic usage factor (*i.e.*, duty cycle) and the distance to receptors. **Table 3.10-3** presents the reference sound emissions for equipment commonly used in roadway, track and bridge projects. **Table 3.10-4** presents the typical equipment used during earth and rock excavation and track reconstruction, which are generally the loudest phases of construction.

**Table 3.10-3 Construction Equipment Sound Emissions**

Equipment	Sound Level at 50 feet (dBA)	Usage Factor (%)
Compressor	80	40%
Pump	77	50%
Excavator	85	40%
Backhoe	80	40%
Front End Loader	80	40%
Concrete Truck	85	40%
Dump Truck	84	40%
Mini Pile Drill	84	20%
Air Track Drill	85	20%
Rock Drill	85	20%
Vibratory Hammer	95	20%
Crane	85	16%
Grader	85	40%
Roller	85	20%
Compactor	80	20%

Source: FHWA, 2006.

**Table 3.10-4 Construction Equipment by Phase**

Support of Excavation	Track Reconstruction
Compressor	Compressor
Concrete Truck	Backhoe
Mini Pile Drill	Compactor
Rock Drill	Dump Truck
Excavator	Excavator
Dump Truck	Grader
Front End Loader	Roller
Crane	
Vibratory Hammer	
Pump	

Source: VHB 2017.

Construction noise from these phases has been evaluated throughout the Study Area including 31 representative noise-sensitive receptors. The construction noise analysis takes into account the amount of time equipment operates throughout each phase (duty cycle). Since the detailed scheduling of specific equipment locations and times throughout construction is not known, the noise analysis is based on a typical equipment layout for each phase. As shown in the Noise and Vibration Technical Report (**Table 6, Appendix F**) and **Maps 3.10-2 to 3.10-6**, construction noise levels would typically be 55 to 80 dBA (Leq). Near the CBD, and areas just north and south of the bridges, the loudest construction activity would be rock and earth excavation. Towards the northern and southern termini of the Project Area, the loudest construction activity would be track reconstruction.

Construction noise levels are not projected to exceed the relevant FTA daytime guidelines at any residential, commercial or industrial receptor. Construction noise levels due to track reconstruction would exceed the FTA nighttime guidelines at R5 (see **Map 3.10-1**), which is representative of residences on Middle Seymour Street approximately 30 feet from the track location.

### **Construction Vibration Evaluation**

Construction of the Proposed Action would include vibration-generating equipment such as excavators, a vibratory hammer, a vibratory roller for track construction and drilling for soldier pile walls.

**Table 3.10-5** shows the vibration level in PPV (inches per second) at distances of 15, 25 and 50 feet from the equipment. This table shows that vibration levels from most equipment would be below 0.5 inches per second at distances 15 feet or farther from buildings and sensitive structures. The upper range of vibratory hammering may approach 2.0 in/s at distances within 15 feet. This is provided for informational purposes only.

**Table 3.10-5 Construction Equipment Vibration Source Levels**

<b>Equipment</b>	<b>PPV at 15 feet (inches/second)</b>	<b>PPV at 25 feet (inches/second)</b>	<b>PPV at 50 feet (inches/second)</b>
Vibratory Hammer (Upper Range)	1.579	0.734	0.260
Vibratory Hammer (Typical)	0.366	0.170	0.060
Vibratory Roller	0.452	0.210	0.074
Drilling	0.191	0.089	0.031
Excavator/Bulldozer	0.191	0.089	0.031

Source: FTA, 2006.

### 3.10.5 Mitigation and Summary of Effects

The Proposed Action would not have an effect on long-term noise or vibration and therefore, mitigation is not required to reduce noise or vibration from rail or roadway sources. Because existing vibration levels exceed the FTA criteria for human annoyance, VTTrans is proposing to incorporate elements within the track design, such as ballast mats and/or resilient rail fasteners as a Project enhancement to reduce current vibration levels in the Middlebury Village Historic District and the CBD.

Ballast mats are placed on top of packed subgrade or on top of the tunnel invert and underneath the ballast to reduce vibration propagating to nearby receptors. Ballast mats are typically a few inches thick and made of a resilient material (*i.e.*, rubber or dense foam). Generally, ballast mats are effective at reducing vibration above 25 hertz by 10 to 15 VdB. Resilient rail fasteners include thin pads between the bottom of the rail and the ties. They are generally effective at reducing vibration above 30 to 40 hertz by 5 to 10 VdB. During final design, the Project team will evaluate the feasibility of such features and their anticipated effectiveness to reduce vibrations.

During construction of the Proposed Action, daytime activities would not exceed the FTA construction noise guidelines at residential or commercial receptors and, therefore, there is no need for daytime construction noise mitigation. Nighttime construction activities may exceed the FTA construction noise guidelines at residences on Middle Seymour Street which are approximately 30 feet from the track. Mitigation will be implemented for nighttime activities in the area near Middle Seymour Street to minimize potential impact. Best management practices will be used to minimize adverse effects due to construction noise as feasible and reasonable including the following:

- Assuring that equipment is functioning properly and is equipped with mufflers and other noise-reducing features.
- Locating especially noisy equipment as far from sensitive receptors as possible.
- Using quieter construction equipment and methods, as feasible.
- Using path noise control measures such as portable enclosures for small equipment (*i.e.*, jackhammers and concrete saws).
- Replacing back-up alarms with strobes, as allowed within OSHA regulations, to eliminate the annoying impulsive sound.
- Maintaining strong communication and public outreach with adjacent neighbors is a critical step in minimizing impact. Often providing abutters information about the time and nature of construction activities can minimize the effects of construction noise.

- The Project team will coordinate with local officials and neighbors to minimize construction noise during events such as church services and theater performances.

To minimize the risk of construction vibration causing structural damage to nearby buildings, a substantially more detailed process is being followed as part of the Historic Structures Management Plan. The Historic Structures Management Plan outlines a formal process to control and minimize potential vibration impact and will include determining an area of potential effect (APE), Project Stakeholder review of the APE, inventorying buildings within the APE, developing a Special Provision for the contractor to conduct pre-construction structural surveys, refine acceptable vibration limits based on site-specific conditions, monitor vibration during construction and conduct post-construction structural surveys.

With the deployment of the mitigation measures described above, adverse noise and vibration effects resulting from construction would be short-term, local, and minor.

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## 3.11 Parks, Recreation and Conservation Land

This section identifies public parks, wildlife refuges, and public recreation land located within, or in the vicinity of, the Study Area. The environmental consequences of the Proposed Action on public parks and recreation land are evaluated and measures to avoid, minimize or mitigate potential effects are discussed.

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### 3.11.1 Regulatory Context

Public parks, wildlife refuges, and public recreation land are subject to protection under the USDOT Act of 1966 [Section 4(f)] and may be subject to the Land and Water Conservation Fund (LWCF) Act of 1964 [Section 6(f)]. Section 4(f) resources are discussed separately in **Chapter 4**.

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### 3.11.2 Methodology

Consultation with the Town of Middlebury Planning and Zoning was initiated to determine whether public parks, recreation areas, and/or conservation lands occur within, or in the vicinity of the Study Area. Consultation with the Vermont Department of Forests, Parks, and Recreation was also initiated to determine whether LWCF projects occur in the vicinity of the Study Area.

A search of the Vermont Conserved Lands Database, produced by the University of Vermont Spatial Analysis Laboratory and distributed by the VCGI, was also conducted

to determine whether conserved public lands occur within, or in the vicinity of, the Study Area.

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### 3.11.3 Affected Environment

Public lands and recreational areas are shown on **Map 3.11-1**. There are no Section 6(f) resources within the Study Area. The nearest Section 6(f) properties are Cannon Park, Middlebury Recreation Park, and Middlebury Recreation Area. Two public parks are present within the Study Area: (1) the Marble Works Riverfront Park; and (2) the Middlebury Village Green, which includes Triangle Park.

Marble Works Riverfront Park includes a stone amphitheater facing the Otter Creek Falls. The park is landscaped with native grasses and shrubs as well as rain gardens. Access to the Otter Creek is provided via an accessible path to/from the upper park area, and lighting and interpretive signage reflects the historic mill use of the area. Middlebury residents use the park for festivals, picnicking, and enjoying the scenery.

Historically, the Triangle Park area was a part of the Middlebury Village Green, until 1849, when the Rutland Railroad constructed the current cut section of railroad. A building was constructed in Triangle Park around 1853 and stood until the 1891 fire. By the early 1900s, Triangle Park looked similar to the current Triangle Park configuration. In 1908, a cast iron fountain was added to Triangle Park, but it was removed in 1938 due to public complaints. The current fountain was added in 1976. The eastern portion of the park, the Village Green, has changed little since 1849. The entire parcel of land (Triangle Park and the Village Green) is roughly triangular-shaped. The Village Green, including its Triangle Park component, are considered Section 4(f) resources (see **Chapter 4**).

There are no conserved lands within or in the vicinity of the Study Area.

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### 3.11.4 Environmental Consequences

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#### 3.11.4.1 No Action

The No Action Alternative would not require the use of land from any public park or public recreation land as no additional public lands would be cleared or built upon.

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#### 3.11.4.2 Proposed Action

The Proposed Action would have no effects on any Section 6(f) properties. The properties are nearby, though not within the Study Area. The properties would not be

used for staging and access would not be otherwise used or modified for the Proposed Action.

#### **Marble Works Riverfront Park**

Construction of the Proposed Action would result in a short-term effect on the Marble Works Riverfront Park. The effects at the Marble Works Riverfront Park are due to the installation of underground stormwater facilities, and temporary access for construction of the primary stormwater outfall.

Underground stormwater facilities would be installed via microtunneling as described in **Section 2.5.1.1** and therefore no surface disturbance for this activity within Marble Works Riverfront Park is anticipated. The temporary construction access road would require tree removal and temporary disturbance to the park surface to create a 16-foot wide access road, including the removal of seating blocks (see **Figure 2.5-2**). The alignment of the road would follow that of the existing paved walkway that leads to the pedestrian bridge for roughly 120 feet south from the Marble Works parking lot, then diverge to cross over a grassed portion of the park to follow an existing access road along the base of the Otter Creek bluff (see **Map 2.5-1**).

During construction, the use of portions of the paved pathway, stone seating area, and grassed areas would result in the temporary loss of some internal park accessibility. Access between the park and the south side of the Otter Creek via the pedestrian bridge would be temporarily disrupted when construction vehicles are using the path. Otherwise, the pedestrian way would be open for use. Additionally, park impacts are restricted to Year 1 or the four projected years of construction.

The effects of the Proposed Action on Marble Works Riverfront Park due to the temporary access road would not be adverse, and disruption would be temporary. Select tree removal along the western perimeter of the park would not adversely affect the overall park setting, as many trees would remain in this area.

#### **Middlebury Village Green**

The Proposed Action would result in the reestablishment of the pre-railroad extent of the Village Green, effectively reconnecting it with the Triangle Park area. This would have a long-term beneficial effect by providing additional area for public recreation and events and providing a more cohesive green space in the center of the downtown. Additionally, the Proposed Action is anticipated to have an additional beneficial effect on Village Green by improving pedestrian access and mobility through downtown. Pedestrians would be able to walk through the park rather than around it to reach the Triangle Park area as is currently required.

Conceptually, the new area reconnecting the Village Green would be a grassed surface. To achieve sufficient depth-of-cover over the top of the tunnel, it may be necessary to add fill material such that the grade between the Village Green and the Triangle Park area would not be an even surface, necessitating the need for a low retaining wall. Such a wall could be added as an amenity, for example a seating wall consisting of ashlar blocks salvaged from the existing bridge abutments (see **Figure 3.11-1**). As noted in **Section 3.12.4**, the design of the Village Green will be carried out in conjunction with the VTrans Historic Preservation Officer and with the input of the public.



**Figure 3.11-1.** Rendering of conceptual park setting atop the tunnel in which ashlar blocks salvaged during construction are used to create a seating wall on the reconnected Village Green. View is to the north. The fountain in the Triangle Park area is shown at left. Prepared by LandWorks, Middlebury, Vermont.

During the construction of the Proposed Action, utility installations would not result in an adverse effect on the Village Green as they would be carried out in areas that are not commonly used for recreation. Instead, the utility installation would result in a short-term effect. Stormwater infrastructure would be installed in the southwestern corner of the park (south of St. Stephen's Church). Overhead electrical and telecommunications lines would be relocated underground in this same area. A field drain located to the east of the Church would also be replaced. Project demarcation fencing would be established from north to south across the Village Green just east of St. Stephen's Church to restrict public access from the work zone. The remainder of the Village Green would remain accessible throughout during construction. Existing woody vegetation along the rail corridor would be removed during construction. This vegetation is cleared from time to time to mitigate risks to train traffic. None of the mature, planted woody vegetation within the Village Green would be removed for construction.

### **Triangle Park Area**

The Triangle Park area of the Village Green would be closed to public access throughout construction. The area is proposed for use as a temporary equipment staging area and for the positioning of cranes and other construction vehicles. The existing fountain would be removed in advance of construction and stored offsite. After construction, this area of the park would be returned to its pre-construction condition.

The Proposed Action would have a short-term, adverse effect on the Triangle Park area of the Village Green due to its inaccessibility throughout construction. The Proposed Action would also have a long-term beneficial effect on the park since this area would be reconnected with the larger Village Green as described in the preceding discussion.

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### **3.11.5 Mitigation and Summary of Effects**

The Proposed Action would result in long-term, local, minor to moderate beneficial effects to park lands within the Project Area due to reestablishment of the pre-railroad extent of the Village Green. The public will be invited to provide input on the design of the reestablished Village Green. Following completion of the outfall installation, the Marble Works Riverfront Park will be returned to its preconstruction condition.

Given the absence of Section 6(f) resources and impacts, no mitigation is necessary for Section 6(f) resources. At Marble Works Riverfront Park and the Village Green (including Triangle Park), signage will be installed during construction to guide park users towards alternate pedestrian routes to or around the parks.

The Proposed Action would result in short-term, local adverse effects on parks during construction due to access limitations. However, given the mitigation measures described herein, these impacts would be minor.

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## **3.12 Historic Resources**

This section describes the above-ground historic resources within and in the vicinity of the Study Area. It describes the environmental consequences of the Proposed Action on those historic resources and discusses the avoidance, minimization, and mitigation of effects on the resources.

### 3.12.1 Regulatory Context

Historic resources are resources that are listed in, or eligible for listing in, the National Register. They include above-ground as well as below-ground (*i.e.*, archaeological) resources. To be eligible for listing in the National Register, a resource, whether a building, site, structure, object, or district, must be at least 50 years old (unless it meets Criteria Consideration G: Properties That Have Achieved Significance within the Past Fifty Years) and it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historic resources must possess a quality of significance in U.S. history, architecture, engineering, and culture. In addition, the resource must meet at least one of the four Criteria for Evaluation defined by the National Park Service in 36 C.F.R. Part 60 <sup>3</sup>. The four evaluation criteria are:

- A. Association with events that have made a substantial contribution to the broad patterns of our history.
- B. Association with the lives of persons significant in our past.
- C. Embodiment of the distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a substantial and distinguishable entity whose components may lack individual distinction.
- D. Yielding, or demonstrating the potential to yield, information important in prehistory or history.

The regulations implementing Section 106 of the National Historic Preservation Act of 1966 as amended (36 C.F.R. Part 800) requires Federal agencies to consider the effects of their undertakings on properties listed in or eligible for listing in the National Register. Compliance with Section 106 normally requires consultation with the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) if there are possible effects to these historic properties. In Vermont, Section 106 review is conducted under alternative procedures provided for in 36 C.F.R. 800. A Programmatic Agreement among FHWA, VTrans, the ACHP, and the SHPO allows VTrans to conduct reviews of its own projects, using qualified historic preservation and archaeological professionals on the VTrans staff, without further review or input by the SHPO or the ACHP, except in infrequent instances.

Section 4(f) of the USDOT Act of 1966 also protects cultural resources. A Section 4(f) discussion is included in this EA as **Chapter 4**.

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<sup>3</sup> *Criteria for Evaluation, Title 36, § 60.4, Chapter 1.* Code of Federal Regulations. 2003.

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### 3.12.2 Methodology

A 36 C.F.R. 61 qualified historic preservation planner researched and evaluated the historic resources within the Project area, and analyzed the effects of the Project to these resources per the Section 106 requirements, as outlined in 36 C.F.R. 800. The methodology is further described in Section 1.0 Introduction of the Section 106 Determination of Effect (2013), found in **Appendix G**.

The APE for the Proposed Action was developed based on a determination of 1) areas of proposed ground or structure disturbance and 2) areas that may be affected by construction-related vibration. The APE for disturbance includes the following:

- The width of the railroad ROW from the Otter Creek Truss Bridge (No. 239) to the Elm Street Bridge;
- The Main Street and Merchants Row Bridges and the approach roadways;
- A portion of the Village Green where stormwater interconnections are required;
- A portion of the Marble Works where stormwater improvements will be made outside the state or Town-owned ROW;
- Locations of new utility cabinets;
- The property at 18-20 Main Street where the microtunneling access trench will be located;
- The areas of the proposed temporary access roads, including but not limited to two properties at 124 and 127 Water Street, Marble Works Riverfront Park, and land along the VWRC track north of Water Street and south of Merchants Row; and
- Portions of a parcel that is also outside the state or Town-owned ROW and that contains the barber shop at the southeast corner of the Merchants Row Bridge.

The APE for construction-related vibration is being determined via an evaluation of the proposed means and methods of construction and determining the extent to which vibrations may propagate from the construction sites based on available geotechnical information for the surrounding area. The APE for construction-related vibration impacts will extend beyond that for ground disturbance. The extent of the APE for construction-related vibration is subject to review and approval by the VTrans Historic Preservation Officer. While vibrational impacts are not anticipated to be severe, there is a potential for lesser impacts. Because the APE includes historic properties, the resources will be monitored and assessed prior to Project construction beginning, during, and after construction. The analysis and monitoring are included in the Mitigation & Commitments of this EA (**Section 3.20**) as well as mitigation measures in the Section 106 documentation.

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### 3.12.3 Affected Environment

The Study Area includes individual properties and historic districts that are listed in and eligible for listing in the National Register of Historic Places. Each of the historic properties within the APE are described in the following section, beginning with the listed properties and followed by those determined to be eligible for listing in the National Register. It should be noted that even though a number of historic structures are present within downtown Middlebury, a discussion of specific structures is not included unless they are individually listed on the National Register of Historic Places.

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#### 3.12.2.1 Properties Formally Listed in the National Register of Historic Places

The formally listed historic properties are described in the VHB “Determination of Eligibility” Report (**Appendix G**). This section provides an overview of those resources.

##### **Districts**

The MVHD is listed in the National Register (original nomination 1976, amendments 1980, 2001). The MVHD is comprised of two contiguous parks, the Village Green and Court Square, and the public, commercial, civic, and residential areas of 20 major and subsidiary roads that radiate in all directions from these parks.

The MVHD encompasses one of the largest continuous areas and highest concentrations of architecturally significant structures in the state of Vermont (see boundary map, **Appendix G**). Embracing the Town’s major 19<sup>th</sup> century residential, civic, commercial, and industrial sections, the district clearly bears physical witness to the nature of the Town’s development from a strategically located frontier community to an early industrial/commercial center that supplied the national market with cotton, cut marble, and wool. Middlebury also fostered the invention of a number of processes related to these industries, inventions that eventually were patented and adopted throughout the country.

The buildings in the district range in date from the late 18<sup>th</sup> to the early 20<sup>th</sup> centuries and include at least one example of each major trend in New England architecture during this time span. The district is particularly strong in Federal style semi-public and private buildings, vernacular Second Empire and Italianate Revival style public buildings, and Queen Anne style commercial, civic, and private structures.

## **Individual Properties**

All historic properties within the APE are contributing elements to the MVHD. The Old Stone Mill (Mill Street/Frog Hollow Road) contributes to the MVHD and was individually listed in the National Register in 1973 (Liebs 1973). It is identified on the Key Features **Map, 1.2-2**.

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### **3.12.2.2 Properties Determined Eligible for Listing in the National Register**

The historic properties eligible for listing are described in the VHB “Determination of Eligibility” Report (**Appendix G**). This section provides an overview of the resources.

#### **Rutland Railroad Historic District**

The Rutland & Burlington Railroad was built through the center of Middlebury in 1849 and subsequently renamed the Rutland Railroad in 1867. The railroad corridor was not included in the MVHD, which is not uncommon for nominations from the 1970s and 1980s. However, the railroad depot on Seymour Street is included, as is the 1893 Warren steel-through truss bridge over the Otter Creek. The Rutland Railroad has contributed to the village’s history, its physical development, and its appearance. In addition to the railroad open cut trench through the village center are the related construction of the adjacent railroad-related buildings, including the station, an ancillary building next to it, and the 1893 Warren truss bridge, and the addition of the Merchants Row and Main Street bridges, subsequently followed by the bridges’ alteration. The bridges were constructed in 1849 with the railroad, and altered three times before being replaced by the 1920-1921 extant concrete bridges. The Rutland Railroad has been determined to be eligible for listing as a linear National Register Historic District (the RRHD), and within the Study Area is considered to be a contributing resource to the MVHD.

#### **Contributing Resources to the MVHD and RRHD**

##### **Railroad Retaining Walls**

The wing walls/retaining walls that line the railroad corridor in the Project Area are not a single era of construction, but rather represent three major episodes of construction. The retaining walls and abutments along the railroad corridor in the Project Area exhibit a high degree of integrity. Various construction campaigns undertaken by the railroad are clearly readable in the various materials and construction methods. As such, the wing walls/retaining walls and abutments along the corridor are considered contributing resources to the National Register-eligible RRHD. Although the wing walls/retaining walls and abutments are not a commonly viewed element within the MVHD, these are located within its boundaries and are

physical reminders of the railroad construction and subsequent improvements to the corridor in the late 19<sup>th</sup> and 20<sup>th</sup> century. Therefore, all wing walls/retaining walls, other than the more recent one installed by St. Stephen's Church, are considered contributing resources to the RRHD as well as the MVHD.

### **Main Street and Merchants Row Bridges**

The Merchants Row and Main Street bridges have been determined eligible as contributing resources to the National Register-listed MVHD and National Register-eligible RRHD. The Rutland Railroad constructed the two bridges, referred to as Bridges 240 (Merchants Row) and 241 (Main Street), in 1920-1921. The State of Vermont acquired the Rutland Railroad's interest in the bridges when it purchased the railroad in 1964. Currently, the bridges are referred to on the VTrans official town highway map for the Town of Middlebury as Bridges 2 (Merchants Row) and 102 (Main Street).

Both bridges are two-span concrete-encased steel beam bridges with a concrete T-beam approach span and a reinforced concrete slab main span. The ends of the approach and main spans are supported by concrete-encased steel piers. Both bridges are supported by granite ashlar abutments laid in approximately 11-12 regular courses visible above ground surface. These ashlar abutments likely date to the late 19<sup>th</sup> century, as they are consistent with stone abutments constructed by many New England railroads during the late 19<sup>th</sup> century, often as original abutments reached the end of their lifespan or needed to be rebuilt to accommodate larger rail cars. The abutments have been altered slightly during the 1920s, and this is discussed in the Determination of Eligibility report (see **Appendix G**).

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## **3.12.3 Environmental Consequences**

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### **3.12.3.1 No Action**

Due to the continuing deterioration of both the Main Street and Merchants Row Bridges, the Vermont Secretary of Transportation issued an emergency order on March 27, 2017 authorizing VTrans to install temporary bridges over the railroad to replace the existing bridges. The installation of temporary bridges is a separate project from the Proposed Action as evaluated under this EA. The installation of temporary bridges includes the demolition of portions of the historic bridges (*i.e.*, existing decks, piers, and railings).

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### **3.12.3.2 Proposed Action**

The Proposed Action will likely require removal of bedrock along the rail corridor to achieve the necessary increase in vertical clearance and to install stormwater drainage

infrastructure. It is anticipated that bedrock removal will be completed through a combination of mechanical means and controlled blasting and will occur primarily within the vicinity of the existing Main Street Bridge. The Proposed Action also includes the use of heavy construction equipment and the installation of temporary and permanent retaining walls, including steel sheeting and pilings.

The Proposed Action will have an adverse effect on the MVHD and the RRHD as a result of the removal of historic resources: specifically the remaining portions of both the Main Street and Merchants Row bridges. In addition, the wing walls/retaining walls along the railroad corridor in the Project Area will be either buried *in situ* or removed. The loss of the existing view of the track between the two bridges may contribute to the adverse effect on the districts, though it is recognized that this effect is subjective as it depends on the bias of the viewer. In addition, the view of the tracks varies according to the extent of vegetation present and the season. The corridor is generally more visible during the winter months when trees are free of leaves. Additionally, as required by FRA track safety regulations (see 49 C.F.R. § 213.37), tree and shrub clearing occurs routinely to ensure the track is not fouled by downed vegetation. The viewshed of the track is enhanced by such activities, though the appearance and extent of the view changes gradually as vegetation matures.

The potential adverse effect of the loss of the viewshed of the railroad corridor between the bridges is anticipated to be offset, in part, by the closure of the open cut trench section of track and the reestablishment of the pre-railroad extent of the Village Green. Reconnecting the Triangle Park area with the remaining Village Green and establishing a park setting over the rail tunnel will have a long-term beneficial effect on the MVHD. The reestablished park will enhance pedestrian connectivity in the downtown area, enhance the opportunity to view and appreciate the historic buildings fronting the park, and provide additional space for passive recreational experiences or events in a manner consistent with the original purpose of the village greens that are present throughout Vermont. Village greens (also referred to as town greens or town commons) are critical components of Vermont's history, physically and socially. Historically, this is where roads converged, meetinghouses were constructed, and commercial and residential life clustered.

Construction-related vibration has the potential to affect the historic structures within the APE in the form of physical damage (*e.g.*, foundation or wall cracking, broken windows). The vibrational analysis determined that it is unlikely these impacts would be substantial.

There would be no train-generated noise impact according to FTA criteria. Current levels of train-generated vibration may exceed FTA criteria for human annoyance; however, it has been determined that the Project will not cause additional train-generated vibration impacts. Because existing vibration levels exceed the FTA criteria

for human annoyance, VTTrans is proposing to incorporate elements within the track design, such as ballast mats and/or resilient fasteners as a Project enhancement to reduce current vibration levels in the Middlebury Village Historic District. During final design, the Project team will evaluate the feasibility of such features and their anticipated effectiveness to reduce vibrations.

Based on the foregoing, a Section 106 Determination of Adverse Effect has been made for the Proposed Action (see **Appendix G**).

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### 3.12.4 Mitigation and Summary of Effects

A number of measures are proposed to mitigate the adverse effects on historic resources. These measures include standard measures employed for VTTrans projects that result in an adverse effect. Others are Project-specific stipulations and management plans. These are summarized below and discussed in the Section 106 Project Review Memorandum - Amendment (**Appendix G**).

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#### 3.12.4.1 Standard Mitigation Measures

The VTTrans Manual of Standards and Guidelines (VTTrans 2000) includes requirements for projects that have an adverse effect on historic properties. The VTTrans Historic Preservation Officer has determined that it is appropriate to utilize Standard Mitigation Measures (SMMs). These SMMs are selected from the above-mentioned Manual of Standards and Guidelines. The applicable measures include the following:

➤ **Photographic Documentation (SMM #1)**

This mitigation measure applies to the Merchants Row and Main Street bridges and to the retaining walls between the bridges and their approaches.

*The VTTrans shall ensure that the historic property is recorded prior to its demolition, alteration, or relocation in accordance with Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO. The VTTrans shall retain one copy, provide one to the Division for Historic Preservation (DHP), and one or more to appropriate local depositories. Copies of original plans for engineering structures should be part of the documentation package, if possible.*

➤ **Interpretive Signage (SMM #9)**

Interpretative signage will be installed in the Village Green consistent with the following mitigation measure.

*The VTrans, through the use of research, design and fabrication consultants as appropriate, shall produce one or more signs to describe the work on a property, archaeological resource recovered from the site, the site's history, or its historic context. VTrans and/or local interested parties shall plan the sign(s) and address maintenance and long-term care of permanent sign(s).*

➤ **Salvage of Architectural or Engineering Features (SMM #14)**

This mitigation measure applies to the ashlar blocks that the Town selects to retain for use in future projects.

*VTrans shall identify appropriate parties to receive salvaged architectural or engineering features. VTrans shall ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features shall be reused in other preservation projects.*

➤ **Design of a New Bridge (SMM #19)**

Given that the Proposed Action is a tunnel, this mitigation measure can be applied in terms of tunnel end caps and other design features such as bridge railing. See also **Section 3.12.4.2** below, "Design of Tunnel Ends".

*The design for the new bridge shall be compatible with the surrounding historic and natural environment in design, massing, scale, width, materials, color, etc. The design shall be recognizable as contemporary, and while it may reference the design of the previous bridge, it shall avoid creating an inappropriate use of false historic appearance.*

The Section 106 letter for the Proposed Action includes the following additional requirements in accordance with the preceding SMMs:

➤ **Storage of Surplus Ashlar Blocks (SMM #14)**

*Surplus ashlar blocks were to be stockpiled for later use on Town projects. The project has changed, however, and additional blocks will be removed as part of the project. It now appears that there will be far too many blocks for the Town to stockpile and use in future projects. Therefore, this mitigation measure is revised to state that the Town of Middlebury is not required to retain all ashlar blocks made available*

*by the current project and instead may select the number of ashlar blocks they consider appropriate for use in future projects.*

➤ **Enhancing Interpretive Opportunities: (SMMs #9 and #14)**

*The reestablishment of the original extent of the Village Green provides a means of acknowledging the importance of the railroad to the Town of Middlebury; interpretive signage will be installed in the re-connected green space to describe the importance of the railroad in the development of the Town of Middlebury. The VTrans Historic Preservation Officer will review and approve the sign content and design. Ashlar blocks salvaged from the eastern abutments of both bridges will be used as structural and decorative elements in the new green space, providing a practical means of achieving the necessary cover and site grading above the tunnel and a functional and tactile interpretive element to convey the importance of the railroad to park visitors. The VTrans Historic Preservation Officer will review and approve final plans for the reconnected Village Green and the means of incorporating ashlar blocks.*

➤ **National Register (SMM #12)**

*Working in cooperation with the SHPO, VTrans will ensure that a qualified professional prepares a new National Register of Historic Places nomination for an updated Middlebury Village Historic District.*

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#### **3.12.4.2 Project-specific Stipulations**

In addition to the SMMs, final plans for the Proposed Action and any subsequent modifications thereto are subject to the review and approval of the VTrans Historic Preservation Officer in advance of construction. The following details are provided with regard to specific design elements; however, the complete plan is subject to the aforementioned review and approval (see **Section 3.12.4.1**).

➤ **Replacement Bridge Railings**

*Existing railings will be replaced with crash-tested railing, the selection and design of which will be approved by the VTrans Historic Preservation Officer.*

➤ **Design of Tunnel Ends**

*The final configuration of the ends of the tunnel will require coordination with the VTrans Historic Preservation Officer. These areas may terminate parallel to the roadway centerline or perpendicular to*

*the railroad corridor. The VTrans Historic Preservation Officer will review and approve the design so that it is carried out in a manner consistent with the surrounding elements of the Middlebury Village Historic District.*

➤ **Triangle Park area of Village Green**

*The consulting engineer and municipality shall ensure that the VTrans Historic Preservation Officer is invited to participate in design work related to reconfiguration of Triangle Park. Plans for the park and environs as affected by this undertaking will require written approval by the VTrans Historic Preservation Officer.*

➤ **The Guidelines for Preparing a Historic Structures Management Plan [see Section 3.12.4.3]**

*VTrans will ensure compliance with the steps and milestones detailed in The Guidelines [Appendix G].*

- The historic building at 127 Water Street will be included within the Historic Structures Management Plan.
- Ballast mats and/or resilient rail fasteners will be incorporated into the track design as a project enhancement.
- During final design, the Project Team will evaluate the feasibility of such features (ballast mats and/or resilient rail fasteners) and their anticipated effectiveness to reduce vibrations. This will be omitted only if inclusion within the design was physically infeasible, or its efficacy is determined to be minimal.
- During final design, the appearance and locations of the new or replaced utility cabinets will be reviewed to minimize their potential effects on the surrounding historic district.
- The additional SMM requiring a new National Register nomination for the Middlebury Village Historic District, as detailed above, will be carried out as part of the Proposed Action.

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### **3.12.4.3 Management Plans**

Recognizing that general transportation construction activities may cause ground vibrations, VTrans has included provisions within its 2011 *Standard Specifications for Construction* (incorporated by reference into construction contracts) for the use of

explosives and the protection and restoration of property (see Sections 107.11 and 107.12). In the case of the Proposed Action, its occurrence within the MVHD and in proximity to contributing historic structures (some of which are individually eligible for the National Register) requires additional measures be taken to ensure compliance with Section 106.

To minimize the potential adverse effects on historic structures, VTrans, in conjunction with the public (*e.g.*, the Middlebury Selectboard and key Town stakeholders), developed Guidelines for Preparing a Historic Structures Management Plan, dated August 2016 (see **Appendix G**).

The purpose of this document was threefold:

1. To recommend components of a Special Provision to guide the Construction Contractor in development of a formal Historic Structures Management Plan (the Plan). The Plan will be required to include specifics related to procedures for a pre-construction survey and written assessment of historic structures within the APE for construction-related vibrations, construction monitoring and reporting, and a post-construction survey. The Special Provision is intended to augment Section 107 of VTrans 2011 *Standard Specifications for Construction* and will be incorporated into the Contract Documents for the Proposed Action.
2. To provide the VTrans Historic Preservation Officer and Project Stakeholders with fundamental information regarding the proposed means of protecting historic resources during construction. Also, to detail the process by which the VTrans Historic Preservation Officer, in conjunction with Project Stakeholders, will identify and establish specific stipulations and/or mitigation measures that are required to be incorporated into the Special Provisions for the Proposed Action to protect historic structures during construction.
3. To address the questions and concerns of those landowners abutting the Project Area regarding what measures will be taken to protect their structures during construction.

These guidelines represent an initial step in a collaborative and iterative process, defining the scope of the Special Provision and ultimately the content of the formal Historic Structures Management Plan.

The Guidelines for Preparing a Historic Structures Management Plan includes a discussion of considerations for pre-construction inventories, construction monitoring and reporting, and post-construction inventories (see **Appendix G**).

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#### 3.12.4.4 Summary of Effects

The Proposed Action would result in a moderate adverse effect on historic resources due to the demolition of the remaining portions of the two historic bridges, including the associated wing walls/retaining walls. Appropriate mitigation measures have been developed and will be implemented as part of the Project. A long-term, local, minor to moderate beneficial effect of the Proposed Action on historic resources would be realized through the reestablishment of the pre-railroad extent of the Village Green.

Adverse effects on historic structures are possible due to effects from construction related vibration; however, substantial impacts are not anticipated and mitigation measures including the Historic Structures Management Plan will be used to reduce or eliminate the likelihood of these effects.

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### 3.13 Archaeological Resources

This section describes the archaeological resources within the Study Area, which have been identified by a review of available background information at the DHP, field work, and the preparation of archaeological reports. These studies are further described in the Section 106 review letter (**Appendix G**). Potential effects on archaeological resources from the Proposed Action are discussed, as well as mitigation measures.

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#### 3.13.1 Regulatory Context

Archaeological resources are the material remains of past human activity; an archaeological site is the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of those remains. To be eligible for listing, an archaeological property must meet at least one of the four Criteria for Evaluation defined by the National Park Service. These are summarized in **Section 3.13.1**, along with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (36 C.F.R. Part 800).

Additional guidance from the National Park Service states,

*"The use of Criteria A, B, and C for archaeological sites is appropriate in limited circumstances and has never been supported as a universal application of the criteria. However, it is important to consider the applicability of criteria other than D when evaluating archaeological properties. The preparer should consider as well whether, in addition to research significance, a site or district has traditional, social or religious significance to a particular group or*

*community. It is important to note that under Criteria A, B, and C the archaeological property must have demonstrated its ability to convey its significance, as opposed to sites eligible under Criterion D, where only the potential to yield information is required” (Little et al. 2000).*

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### 3.13.2 Methodology

An Archaeological Resource Initial Identification Study was completed in 2000 for what was at the time the proposed rehabilitation of the Main Street Bridge (Hartgen 2000). The Hartgen study included a review of the Vermont Archaeological Inventory (VAI) and the Town files.

Additionally, because of the tendency of Precontact archaeological sites to occur on the banks of the Otter Creek, the locations of the proposed flood berm south of Merchants Row were evaluated for archaeological sensitivity by Jeannine Russell, VTrans Archaeology Officer, during a site visit on August 21, 2013. This site visit was also attended by John Crock of the University of Vermont Consulting Archaeology Program. During this site visit, the participants reviewed an existing and proposed conditions map depicting the locations of existing and proposed utilities, including stormwater, sanitary sewer, and telecommunications. Also reviewed was the 1871 Beers Atlas of Addison County.

Details of the methodology are further described in the July 20, 2017 Section 106 letter (**Appendix G**).

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### 3.13.3 Affected Environment

The APE for archaeological resources includes areas of disturbance:

- The width of the railroad ROW from the Otter Creek Truss Bridge (No. 239) to the Elm Street Bridge;
- The Main Street and Merchants Row Bridges and the approach roadways;
- A portion of the Village Green where stormwater interconnections are required;
- A portion of the Marble Works where stormwater improvements will be made outside the state or Town-owned ROW;
- Locations of new utility cabinets;
- The property at 18-20 Main Street where the microtunneling access trench will be located;
- The areas of the proposed temporary access roads, including but not limited to two properties at 124 and 127 Water Street, Marble Works Riverfront Park,

and land along the VWRC track north of Water Street and south of Merchants Row; and

- Portions of a parcel that is also outside the state or Town-owned ROW and that contains the barber shop at the southeast corner of the Merchants Row Bridge.

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### 3.13.3.1 Archaeological Sensitivity

#### Pre-European Contact

A review of the VAI and the Town files performed for the Hartgen study did not reveal any reported pre-European contact archaeological sites within or immediately adjacent to the Study Area, or within what is the APE of the Proposed Action. The Hartgen study used the DHP Environmental Predictive Model for Locating Archaeological Sites, which yielded a sensitivity rating of 4, which indicates a non-sensitive site. From the study:

*"The [project] location would ordinarily have a high sensitivity rating due to the proximity to the Otter Creek and falls at Middlebury. However, the low score is due to the intense historical development that has taken place in the project vicinity. Therefore, intact Precontact resources are unlikely to be present."*

The railway corridor represents one such area of intense development. To install the track through Middlebury and maintain a suitable grade for locomotives, an open cut trench was excavated through downtown Middlebury and wing walls/retaining walls were installed. These activities would have disturbed any pre-European contact resources that were present at the time, making it unlikely that these resources remain present within the railroad component of the APE.

In addition to the existing conditions and historic mapping, the following additional observations were made by Russell and Crock:

- The location of the proposed flood berm and U-wall is on the outside of a meander bend on the Otter Creek, which represents an erosional environment as opposed to a depositional one. Accordingly, archaeological resources, if present, would more likely be shallow than deeply buried. Due to the extent of past disturbance and the lateral migration of the creek over time, archaeological resources would have been susceptible to removal or remobilization. The flood of 1927 may have caused considerable streambank erosion. Some historic riprap was observed just north of the pier at the Cross Street Bridge and extending for an undetermined length downstream, suggesting bank erosion was severe enough to require armoring at some point in the past.

- The construction of the original railroad tracks involved excavation along the east side, with some of that fill likely placed on the west side to create a flat surface for the track and perhaps the siding. This excavation extended to the wing walls/retaining walls near the Battell Block and would have removed and/or possibly reburied archaeological resources.

Based on the available mapping and field conditions, the VTrans Archaeology Officer determined that the locations of the proposed flood berm and U-walls represent areas of low sensitivity for the pre-European contact-archaeological resources.

## Historic Period Archaeological Resources

The Study describes the historic structures that are or were present within the Study Area. It notes that:

*"Although most of the area has late 19<sup>th</sup> to early 20<sup>th</sup> century buildings constructed in the place of previous structures, or is paved over, remains of the earlier structures may be present underneath the paving or under and incorporated into the foundations of the existing structures."*

Those structures that are no longer present were removed for redevelopment or destroyed within the fires of 1883 or 1891. The Hartgen study concluded that the primary type of resource likely to be present within the APE is, "...foundation remains of commercial buildings that were burned or built over as a result of several fires that occurred in the Project Area." Within the APE, historic period archaeological resources may include but are not restricted to the following:

- **Sargent/Allen's Block:** The "Sargent Block," identified on the 1867 Walling map of Addison County and located in the southwest corner of the Village Green, later referred to as "Allen's Block" on the 1871 Beers Map Atlas of Addison County. The 1885 Sanborn Map indicates a reservoir is present adjacent to Allen's Block. Allen's Block was destroyed by the 1891 fire. The mapped location of this block is roughly coincident with that of the current Triangle Park area.
- **Former Main Street and Merchants Row Bridges:** According to the Study and as described in the Determination of Eligibility Report (VHB 2013), the railroad caused the Main Street and Merchants Row Bridges to be raised three times between 1849 and 1907, before the current bridges were completed in 1921. The 1905 Sanborn map identifies the bridges at that time as being wooden. Remnants of these bridges may be incorporated into the fill for the existing bridge abutments.

### 3.13.4 Environmental Consequences

This section describes the environmental consequences of the Proposed Action. The Proposed Action includes the tunnel structure, stormwater improvements, and flood abatement and retaining walls.

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#### 3.13.4.1 No Action

The No Action Alternative will not affect archaeological resources.

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#### 3.13.4.2 Proposed Action

Based on the intensive development and redevelopment within the Project Area over the last 200 years, intact pre-European contact deposits are unlikely (Hartgen 2000). Accordingly, the Proposed Action is anticipated to have no effect on Precontact archaeological resources. Historic period archaeological resources may be present within the APE and may be exposed during construction. The exposure and disturbance of such resources during construction would result in No Adverse Effect to archaeological resources provided that the Proposed Action adheres to the Stipulations contained in **Section 3.13.5**.

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### 3.13.5 Mitigation and Summary of Effects

The Proposed Action will adhere to the requirements of Section 4(I) of the VTrans Manual of Standards and Guidelines regarding *Discovery of Archaeological Sites During Construction*. In addition, the stipulations of the original (2013) Section 106 review memorandum remain valid and are augmented by the 2017 Section 106 amendment (**Appendix G**). The combined stipulations are provided below.

- Archaeological monitoring will be conducted to document any structural features that become exposed during construction that may be associated with the properties contributing to the MVHD and the historic Rutland Railroad (e.g. evidence of early bridge abutments or retaining wall features). These features will be described and photographed. Archaeological monitoring will provide a means to quickly assess and document any such features without interrupting the construction schedule. The archaeological consultant will work closely with the Project's engineer and construction contractor to plan to be present at critical times (e.g. the deconstruction of the wing walls/retaining walls and the dismantling of the bridge abutments) as well as be available on an on-call basis.
- VTrans and the Town will ensure that the entity responsible for construction is familiar with the contents and requirements of Section 4(I) and Section 4(J) Treatment of Human Remains.

- The construction footprint for the stormwater improvements in the Village Green will be minimized to the extent feasible.
- Temporary protective fencing will be placed along the western side limits of the access to protect archaeologically sensitive areas west of the existing pedestrian path.
- There will be no impacts to the area west of the pedestrian path. This area will remain off limits during construction.
- A qualified archaeologist will monitor the excavation of the launch pit and document any structural features that become exposed that may be related to the cotton mill or other previous properties. These features will be described and photographed.

With the deployment of the mitigation measures described above, the Proposed Action would result in no appreciable effects on archaeological resources.

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## **3.14 Acquisitions (ROW)**

This section identifies the type and location of properties that would be affected by temporary and permanent ROW acquisitions as the result of the Proposed Action.

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### **3.14.1 Regulatory Context**

Acquisition of real property and/or displacement of persons must comply with the regulations implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended (49 C.F.R. Part 24).

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### **3.14.2 Methodology**

The ROW impacts for this Project were developed by overlaying the area of construction for the Proposed Action on the existing ROW limits/boundaries for the Study Area. Parcel boundaries were developed from field survey and property record deed research and were used as a base layer for this analysis.

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### **3.14.3 Affected Environment**

The Study Area is located along the railroad corridor and Town streets within a portion of the Town that is urban in character. The affected environment is a highly-developed infrastructure that includes residences, commercial buildings, railroads, streets, and related infrastructure. Properties located on the southern end of the Project Area are mostly residential, whereas properties within the Merchants Row and

Main Street blocks as well as the northern end of the Project Area are generally commercial. See **Section 3.1** for a more detailed description of Land Use.

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### 3.14.4 Environmental Consequences

For purposes of this discussion, three categories of ROW impact were defined:

- **Permanent Easements** would be required for installation and maintenance of permanent infrastructure, including utilities, access, and permanent structures.
- **Temporary Easements** are those areas outside of the existing ROW that would be used for erosion prevention and sediment control measures, regrading, landscaping, and temporary construction access but would not be subject to additional permanent use in maintenance.
- **Relocations** are those properties outside the existing ROW that would be unsuitable for occupation during construction activities, but would not result in acquisition or permanent relocation following the completion of construction.

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#### 3.14.4.1 No Action

The No Action Alternative would not involve the relocation of residences or businesses or result in the acquisition of any new ROW or easements.

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#### 3.14.4.2 Proposed Action

The Proposed Action has been developed so that ROW effects would be minimized. Permanent infrastructure has been designed to fall within the existing ROW boundaries to the extent possible and practical. In general, the Proposed Action would not acquire any ROW in fee. Property acquisitions would be made as temporary and permanent easements or through temporary relocation. Areas of temporary impacts or temporary earth disturbance would be obtained by a temporary easement during construction. Areas where permanent infrastructure is constructed outside of the permanent ROW or areas to access permanent infrastructure would be obtained by a permanent easement. Inhabitants of a building which is determined to be unsuitable for use during construction activities would be eligible for temporary relocation assistance.

##### **Permanent Easements**

Along the southern end of the Project Area, there would be permanent easements to access the railroad corridor from Water Street as well as permanent easements for installation and maintenance of a sewer line along the east side of the railroad. In the

area of the Merchant Row and Main Street Bridges there would be permanent easements for installation and maintenance of electrical and telecommunications utilities, both aerial and buried. In the northern Project Area, there would be permanent easements for installation and maintenance of water, sanitary sewer, storm sewer, electrical and telecommunications utilities. In the Printer's Alley area and Marble Works property there would be permanent easements for installation and maintenance of electric, telecommunications, water, sewer, and storm sewer utilities. Permanent easements would impact a total of 28 properties and would total approximately 58,640 square feet (see **Table 3.14-1**). A detailed listing of the anticipated easements by parcel is included in **Table H-1** in **Appendix H**.

### **Temporary Easements**

The Proposed Action would result temporary easements along the southern end of the railroad corridor for constructing temporary access to the Battell Block and to modify slopes on the eastern side of the railroad corridor. In the area of the Merchants Row Bridge and the Main Street Bridge, there would be temporary easements for support of excavation, construction access, staging, and grading. At the northern end of the railroad corridor there would be temporary easements for modification of slopes, support of excavation, and construction access. Outside of the railroad corridor, there would be temporary easements in the Printer's Alley and Marble Works areas for construction access, including to the proposed primary stormwater outfall. Temporary easements would impact a total of 34 properties and would total approximately 86,510 square feet (see **Table 3.14-1**). A detailed listing of the anticipated easements by parcel is included in **Table H-1** in **Appendix H**.

### **Relocations**

Due to the proximity of one building to the work area, the Proposed Action may result in the temporary relocation of the occupants of one building (two businesses and three apartments). The building would be protected from damage during construction and inhabitants would return following construction. No acquisition of property would occur as a result of the temporary relocation.

**Table 3.14-1 Anticipated ROW Impacts**

<b>Impact Classification</b>	<b>No. Properties</b>	<b>Impact Area (square feet)</b>	<b>Impact Area (acre)</b>
Permanent Easement	28	58,640	1.35
Temporary Easement	34	86,510	1.99
Relocations	2 businesses; 3 apartments*	N/A	N/A
* It is anticipated that one building will need to be vacated during construction, but will be available for reuse after construction			

### 3.14.5 Mitigation and Summary of Effects

For the most part, the Proposed Action is being constructed in the existing ROW, replacing existing infrastructure on alignment. Only the occupants of one building are anticipated to be offered relocation assistance due to building proximity to the work area. Sufficient replacement housing is anticipated to be available locally for relocating occupants of the apartment units. Project elements related to utility improvements would require permanent easements, though these would be primarily underground and easements would be retained to allow for future maintenance.

VTrans will ensure that (1) the acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and (2) relocation resources are available to all residential and business relocates without discrimination. As such, property owners would be entitled to compensation for properties acquired for the Project. The VTrans ROW Section would oversee and execute all ROW procedures including development of plans and titles, assessment/appraisal, negotiation, and administrative support for any condemnation proceedings that might be required. Accordingly, the ROW impacts are considered to be minor and adverse.

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## 3.15 Social and Economic Considerations

The Middlebury Town Plan recognizes the commercial strength of the downtown as being of key importance to community welfare and civic pride. The Project Area includes the heart of the downtown area, centered on the Village Green and the intersection of Main Street and Merchants Row. Accordingly, effects of the Proposed Action on the downtown area are an important consideration. See **Map 1.2-1** for a map of the Project Area. See **Map 1.2-2** for a map of commonly referenced key features within the Project Area.

This section examines the potential effects of the Proposed Action on such social factors as community cohesion and character as well as the financial impact of the Proposed Action on the community. Concerns have been raised that the construction of the Proposed Action could have a serious detrimental impact on the viability of downtown Middlebury, particularly on existing businesses within the downtown core.

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### 3.15.1 Regulatory Context

No permits or authorizations are required for the Proposed Action relative to social and economic considerations. Nevertheless, NEPA requires the Federal government to use all practicable means to ensure that all Americans live in safe, healthful,

productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. § 4331[b][2]). The consideration of safe surroundings includes perceived safety, enhanced aesthetics, and improvements to infrastructure. Culturally pleasing surroundings include those that promote a sense of place, and a more active and accommodating downtown (see **Section 3.12**)

FHWA, in its implementation of NEPA, requires taking into account adverse impacts on the human environment (*e.g.*, structures and infrastructure), cultural institutions, demographics, economic assets and employment, community connectivity and cohesion, and public facilities and services.

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### 3.15.2 Methodology

The methodology for understanding and evaluating social and economic considerations includes soliciting input from various parties as outlined in the VTrans Environmental Procedures Manual. The Local Concerns Meeting for the Project was held on March 28, 2013, at the Town Hall Theater on Merchants Row and an Alternatives Presentation Meeting was held on June 4, 2013, at the Twilight Hall Auditorium at Middlebury College. These and other meetings are summarized in **Chapter 5**. In the time since these meetings were held, modifications warranted additional public outreach. An additional public meeting was held on November 17, 2016, to present a comprehensive summary of the Proposed Action components and its anticipated construction timeline. The public hearing for this EA was held on May 11, 2017, at the Town Hall Theater.

Social and economic considerations regarding the Proposed Action have been and continue to be communicated by the public through a variety of forums, including local newspapers, a Project web site, public meetings, and direct communication between citizens and Town officials and citizens and the VTrans Project team. Expressed concerns are acknowledged, inventoried, and evaluated against design parameters and approaches to address these concerns are presented in the following sections, as appropriate.

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### 3.15.3 Affected Environment

The Project Area is located within the social and commercial core of downtown Middlebury, an area that comprises a variety of mixed uses. Several businesses, institutions, and service providers are situated in the vicinity of the Main Street and Merchants Row bridges. These include public services (*e.g.*, the Post Office), financial services (*e.g.*, National Bank of Middlebury), community services (*e.g.*, St. Stephen's Church), cultural institutions (*e.g.*, Town Hall Theater), and commercial businesses (*e.g.*, the Vermont Book Shop, Sabai restaurant). In addition, residences are present as

apartments on the second and third floors of the Battell Block and above the Bourdon Insurance building on Merchants Row as well as on the upper floors of buildings on the west side of Main Street between Merchants Row and Battell Bridge. Residential land uses are present at the northern and southern ends of the Study Area. These and other land uses within the Project Area are discussed in **Section 3.1**.

The Project Area also includes portions of the Village Green (including the Triangle Park area), which represents an important focal point in the downtown for public recreation and for Town gatherings such as the annual Middlebury Festival on the Green, the annual Vermont Chili Festival, and Peasant Market, among various other events sponsored by local non-profits. All downtown land uses are well connected by sidewalks, facilitating pedestrian accessibility. An ACTR bus stop is present in the downtown area. The availability of public transit allows people living outside the downtown area to commute to work, school, shopping, and appointments.

Portions of Marble Works Riverfront Park also lie within the Project Area. The park provides a greenspace with a scenic view of the Otter Creek Falls. A pedestrian bridge over the Otter Creek connects the park and the overall Marble Works district to Mill Street and to the western section of downtown Middlebury.

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### **3.15.4 Environmental Consequences**

This section describes the potential social and economic effects of the Proposed Action.

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#### **3.15.4.1 No Action**

Under the No Action alternative, the temporary bridges would remain in place. These features may be considered not only unappealing aesthetically but would likely be considered to detract from the character of the historic downtown area.

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#### **3.15.4.2 Proposed Action**

The Proposed Action is fundamentally one of bridge replacements. After construction is complete, roadways and sidewalks will be reestablished and the pre-construction conditions restored, albeit in a safer, more aesthetically pleasing manner. Sidewalk surfaces at the bridge locations and adjoining areas of Main Street and Merchants Row will be substantially improved over existing conditions and replacement bridge railing will be safer and more aesthetically pleasing. A safer passageway through Printer's Alley for both vehicles and pedestrians will enhance the connectivity of the area around the Village Green with the Marble Works area, including the Riverfront Park. Access for emergency services will be restored to pre-construction conditions.

The restoration of the original extent of the Village Green (to include the Triangle Park area) will enhance community enjoyment of and appreciation for the downtown core, providing an expanded public space within which both the local community and visitors can gather for recreational activities and to view the historic buildings fronting the park. It is anticipated that the additional space provided by reestablishing the extent of the pre-railroad park will provide opportunities to expand event space and/or improve event function, including for the annual week-long Festival on the Green. The installation of interpretive signage on the Village Green will enhance the public understanding and appreciation of Middlebury's history (see **Section 3.12.4.1**) in keeping with the interpretive signage recently installed in Riverfront Park.

No design plans for the reconnection of the Village Green have been developed to date. Subsequent to a NEPA determination, plan development will be carried out during final design with opportunity for public input, the process of which is anticipated to foster community spirit and curiosity and draw attention to the downtown core. The reestablished park represents an appreciable positive change in the visual character of and recreational space in the downtown area as well as a promotional opportunity for the Town and local businesses, not only for its post-construction opening but over the long-term. Expanded green space in the busy downtown area will offer residents and visitors greater opportunities to gather, relax, and recreate. This improved amenity in the downtown core is expected to have a long-term, local, moderate beneficial effect on community cohesion and character and on local businesses, providing a substantially improved streetscape at the center of downtown Middlebury.

On a regional and statewide basis, the public investment in the Proposed Action represents a potential economic benefit through the attainment of the design criteria which provide for greater future flexibility in accommodating a wider range of rail freight and passenger traffic, pending upgrades elsewhere along the VWRRC. The intensity of this beneficial impact would be expected to range from negligible to moderate.

### **Temporary Construction Effects**

Public concerns include those that have been raised at public meetings, in public forums such as local newspapers, and in communications with both Town officials and the VTrans Project team. These concerns cover a broad range and include the potential loss of tourism revenue due to widespread media coverage of the Project, the impact on daily civic life of construction activity, the potential loss of local option tax revenues, the forced relocation and/or decreased interest in local festivals and events, and the impact on the profitability and viability of downtown businesses.

To assess the potential impacts of the ten-week closure period on business and property owners, input from the public, including business owners, property owners, residents, and Town officials, was solicited. Concern was expressed that this ten-week closure period as well as the other phases of construction could do considerable harm to the small businesses that define downtown Middlebury. The audience survey conducted during the Local Concerns Meeting concluded that business access is the single greatest public concern regarding the Proposed Action. An analysis of the economic impacts on businesses located within the impacted areas as well as the potential effects of the presence of construction workers over the four-year construction period was also conducted. Specific concerns, the potential effects, and proposed solutions are presented in more detail in the following sections.

### **Accessibility**

Over the proposed four-year construction period, the extent of sidewalk, parking space, and road closures will be variable. To illustrate these seasonal closures, time-series maps have been prepared. **Maps 3.15-1 and 3.15-2a/b** illustrate pedestrian access and parking access over the four-year construction period, respectively, including during the off-season. **Maps 3.15-3 and 3.15-4** illustrate parking and roadway closures during the ten-week closure period between June and August of Year 3, respectively. On **Map 3.15-1**, the temporary sidewalk over the Merchants Row Bridge that will be installed for the temporary bridges in summer 2017 is shown. During the bridge ten-week closure period, rail traffic will be detoured around Middlebury. See **Section 2.5** for additional information regarding construction activities during the ten-week closure period.

### **Pedestrian Access**

**Map 3.15-1** illustrates the availability of pedestrian access throughout the projected four years of construction. By August 31, 2017, the pedestrian paths will have been altered by the installation of the temporary bridges. This will include:

- The sidewalk path along the east side of Main Street is closed/removed between the Triangle Park area of the Village Green and the side door of St. Stephens Church.
- The pre-existing midblock crosswalk and sidewalk over the Merchants Row bridge is removed and replaced with a crosswalk from the south side of Merchants Row on the west side of the former bridge, over the temporary bridge, and back to the south side of Merchants Row on the east side of the former bridge.

- The sidewalk along the west end of Merchants Row adjacent to the Triangle Park area of the Village Green is removed to a location past the former ACTR bus shelter. There is no direct connection from the sidewalk on the west end of Merchants Row at the Village Green to the diagonal walkway through the Village Green.

These modifications to the downtown sidewalks, proposed for the summer of 2017, are unrelated to the Proposed Action.

The Proposed Action has been planned such that pedestrian access to all buildings is maintained throughout the four-year construction period. Sidewalks that will be closed for some period during construction are indicated as red lines on **Map 3.15-1**. Pedestrian access on the building frontages on the west side of Main Street and the south side of Merchants Row will remain unaffected throughout construction. During the ten-week closure period, only the portion of those sidewalks on the bridges will be closed. This temporary limitation in accessibility will result in some inconvenience to pedestrians, as they will not have direct east/west access across the VWRC track. However, these temporarily closed sections of sidewalk do not serve as access to any building, and therefore, building access will remain uninterrupted throughout construction.

After the ten-week closure period in Year 3, pedestrian accessibility is restored substantially. In Year 4, the only sidewalks anticipated to be closed are those within the Triangle Park area of the Village Green. At the conclusion of construction, the extent and orientation of sidewalks will be identical to the pre-construction condition, with substantial improvements to those sidewalks over the former Main Street and Merchants Row Bridge locations.

### **Access to Parking**

**Maps 3.15-2a/b** illustrate access to parking spaces over the four-year construction period. In Year 4, all available parking will be restored. The quantity of available parking downtown will be restored after paving is completed in Year 4, with some final layout modifications, including the positioning of the required reserved (handicapped) parking spaces.

The construction-related temporary loss of parking will occur primarily along Merchants Row and Main Street in the vicinity of the existing bridges, as well as along the driveway to the Battell Block parking lot, where seven parking spaces will be temporarily inaccessible from October of Year 1 through the reopening of Merchants Row following tunnel construction in Year 3. Other than these three locations, some parking spaces west of Printer's Alley in the Marble Works parking lot will be temporarily unavailable between June and September of Year 1 (when stormwater

drainage infrastructure is being installed) and over the ten-week closure period in Year 3 (see detail **Map 3.15-3**). As discussed in **Section 3.2**, the maximum number of parking spaces that will be temporarily unavailable at any one time is about 100, which would only occur during the ten-week closure period.

### **Roadway Closures**

**Map 3.15-4** illustrates the extent of open, limited access, restricted access, and closed roadways during the ten-week closure period in Year 3 when both the Main Street and Merchants Row bridges are demolished and the proposed tunnel constructed. Road closures include Main Street from the Merchants Row intersection to the east side of the Main Street Bridge (roughly equivalent to the east façade of St. Stephens Church), and Merchants Row from the Main Street intersection through to the *Middlebury to Her Soldiers* monument at the intersection with South Pleasant Street. These same roads have portions with limited access during the ten-week closure period (i.e., subject to partial or intermittent lane closures, and/or having access limited to shuttle buses, deliveries, tenants, residents, and emergency vehicles), including:

- Main Street from Bakery Lane to Merchants Row;
- Main Street from St. Stephens Church to Seymour Street;
- the bifurcated component of Merchants Row on either side of the *Middlebury to Her Soldiers* monument; and
- Printer's Alley from the rear of the National Bank of Middlebury to the Marble Works parking lot (Maple Street).

On **Map 3.15-4**, only one restricted access road is present: the temporary Battell Block access road. However, this road is not an existing road but one to be constructed to provide dedicated access to the Battell Block when its current driveway is closed. Access will be restricted to tenants, residents, deliveries, and emergency vehicles (see mitigation discussion, **Section 3.15.5**).

The portion of Printer's Alley that is closed along the north façade of the National Bank of Middlebury is unrelated to the construction of the Proposed Action, as this roadway was closed previously during the installation of the temporary bridges.

The effects of the temporary, construction-related changes in pedestrian, parking, and roadway accessibility on businesses, church services, schools, events in the Village Green, the elderly, and ADA compliance are discussed in dedicated sections below.

### **Effects on Land Uses within the Construction Area**

As discussed above, pedestrian access, vehicular parking, and roadway access will be temporarily eliminated or rerouted during the construction period along a portion of Main Street and Merchants Row (see **Maps 3.15-1** through **3.15-3**), which may affect businesses, institutions, and community services in this area, primarily during the ten-week closure period. The effect is dictated in part by the location of the land use relative to the loss of parking spaces.

On-street parking is currently not available in front of the businesses on Main Street from the intersection with Merchants Row south to Mill Street intersection. At present, customers have to park elsewhere and then walk to these businesses. Because customers are accustomed to having to walk some distance to these businesses, the loss of parking during the ten-week closure period is not anticipated to be a substantial issue for customers or merchants along this stretch of road. . However, land uses on Main Street and Merchants Row that have adjacent on-street parking will be affected by the temporary elimination of these parking spaces and by the truncation of east-west pedestrian accessibility during the ten-week closure period. To determine the potential effect on the various land uses caused by limitations in accessibility, an inventory of the different land uses was carried out and the locations of similar, alternate land uses (e.g., competitive businesses) determined. This is an analysis of brick and mortar stores and it does not take into account the potential loss of business to online sales because of diminished accessibility or the perception of lack of accessibility. Such loss of business to online sales would only affect the sales of those retail items that are otherwise available online. Online shopping would not affect personal services businesses or restaurants.

As shown in **Tables 3.15-1 and 3.15-2** below, within the affected stretch of Main Street, there are a number of active businesses, offices, and services. Current building specific land uses are also shown on **Map 3.15-5**. These include the post office, professional services, community services, and six retail establishments. The professional office uses on Main Street are a real estate agency and bank. Community services uses are also present, including St. Stephen's Episcopal Church and the Middlebury Community Music Center.

Merchants Row also contains a variety of active land uses. These businesses consist of three restaurants, one professional office, two retail stores, one art gallery, and one personal service-based business. Professional office use is an insurance agency. Clothing, and cookware stores are the retail uses. The Community College of Vermont is on the second floor of the Battell Block building. Grace Baptist Church and Town Hall Theater are community service and institutional uses, respectively, located at the eastern end of the street.

**Table 3.15-1. Summary of Main Street Area Land Uses Potentially Affected by Changes in or Temporary Loss of Access**

Building Code	Address	Business Name	Business type
1	51 Main St	51 Main-at the Bridge	restaurant/bar
6	3 Main St	Stephen's Episcopal Church	community services, church
7	6 Main St	Middlebury Community Music Center	community services, music center
8	10 Main St	USPS - Post Office	post office
9	228 Maple St	Marble Works-Business District-Land Works	landscape architect
10	30 Main St	National Bank of Middlebury	service/bank
11	30 Main St	National Bank of Middlebury - Bank Offices	service/bank
12	34 Main St	Floor 2 - Michelles Infinity Salon	personal service
12	34 Main St	Floor 2 - THEO	private offices
12	34 Main St	Floor 2 - D&F	private offices
12	34 Main St	IPJ Real Estate	service/real estate
13	36 Main St	Floor 2 - apartments and private offices	private
13	36 Main St	The Vermont Book Shop	retail, book store
14	40 Main St	Main Street Stationery	retail, stationery
14	42 Main St	Sweet Cecily - Country Store	retail, gift shop
15	44 Main St	Vacant Storefront	retail space
15	46 Main St	Danforth Pewter	retail, gift shop
16	48 Main St	Floor 2 - apartments and private offices	private
16	48 Main St	Wild Mountain Thyme	retail, clothing/apparel

Source: Businesses were verified by ground survey, June 23, 2017

**Table 3.15-2. Summary of Merchants Row Area Businesses, Institutions, and Community Services Potentially Affected by Changes in or Temporary Loss of Access**

Building Code	Address	Business Name	Business type
1	10 Merchants Row	Battell Block, floor 2 - Community College of Vermont	educational institution
1	32 Merchants Row	Basement: Holistic Justice Center (Vacant)	service/professional office
1	96 Merchants Row	Battell Block, floor 3 - apartments and offices	apartments
1	32 Merchants Row	Battell Block, floor 2 - offices	private offices
1	6 Merchants Row	Edgewater Gallery - at home	gallery
1	24 Merchants Row	Carol's Hungry Mind Café	restaurant
1	32 Merchants Row	Curve Appeal	retail, apparel
1	6 Merchants Row	Edgewater Gallery - on the green	gallery
1	16 Merchants Row	Kiss the Cook	retail, cookware
1	22 Merchants Row	Sabai-Sabai Thai Cuisine	restaurant
2	48 Merchants Row	Bourdon Insurance Agency Inc	service/professional office
3	52 Merchants Row	Grace Baptist Church	community services, church
4	66 Merchants Row	Steve's Park Diner	restaurant
5	68 S Pleasant St	Town Hall Theatre	institutional/perf. arts center

Source: Businesses were verified by ground survey, June 23, 2017

The nearest downtown centers are greater than 10 miles away from the business district of Middlebury. Downtown Bristol is approximately 11 miles northeast of Middlebury and Vergennes is 12 miles northwest of Middlebury. The downtown of Bristol contains restaurants, a bank, and boutique shops such as a thrift shop, craft store, and shoe store. Downtown Bristol also has a flower/gift shop and a book store. The Main Street of Vergennes has similar uses to Middlebury, such as restaurants, a performing arts venue, and churches.

While there are downtowns with similar uses located in other communities, the other downtowns are not close enough in proximity to Middlebury's downtown to cause direct competition to existing businesses as a result of construction activities during the ten-week closure period. Therefore, it is anticipated that Middlebury's downtown businesses will not experience any appreciable sales leakage to other downtowns as a result of construction of the Proposed Action.

Effects on businesses because of either public perceptions of diminished accessibility or diminished aesthetics of the area related to construction activity (noise, construction vehicles, etc.) are difficult to analyze. These more subjective effects are to be addressed by a number of mitigation measures as discussed below in Section 3.15.5.

Some of the types of businesses within the affected construction area, such as restaurants and book stores, can be found at other locations within Middlebury, either downtown or other areas in the Town. It is anticipated that only those businesses which offer the same products as the businesses located outside the affected area may experience some customers choosing to purchase the product at a more convenient location within Middlebury. However, it is anticipated that some of the businesses within the affected construction area (especially restaurants) will see an economic benefit from the construction workers and potentially members of the public with interest in the construction, who will visit area restaurants and certain other businesses routinely during construction.

In summary, business that offer unique products, services, or are known as destination businesses, may not see a decrease in their customers; nonetheless all of the businesses located within the affected construction area will still be able to receive customers during the ten-week closure period. (**See Section 3.15.5**). In addition many of these destination businesses can accommodate arrangements to their shops when it is more convenient for their customers or during less intensive constructions periods.

The Proposed Action is anticipated to have a short-term minor to moderate adverse effect on local businesses, institutions, and services during construction due to limitations in pedestrian, parking, and roadway accessibility. Limitations in accessibility will be mitigated to the maximum extent practicable as described below.

### **Church Services**

Members of the public have expressed concern regarding their ability to access St. Stephen's Church, Grace Baptist Church, and the Congregational Church, all of which are located either in or immediately adjacent to the Project Area, during construction. Currently many church attendees/visitors, a number of whom are elderly, park on Merchants Row and Main Street in order to have a short walk to church. During construction, nearby parking will be limited. As noted previously, pedestrian accessibility to each church will be maintained for the duration of construction.

### **Schools**

The Middlebury campus of the Community College of Vermont is located on the second floor of the Battell Block. The college offers summer courses that will coincide with construction activities. Access to the building will remain throughout construction. There are currently no dedicated parking spaces or bicycle accommodations for students. The construction of the Proposed Action will be noticeable to students attending classes that overlook the Project Area.

### **Events in the Village Green**

Because the construction of the Proposed Action requires cordoning off a portion of the Village Green, it will likely affect how and if events are staged at this location and may require the relocation of summer events during the ten-week closure period. Additionally, the real and perceived effects on vehicular, bicycle, and pedestrian accessibility may affect attendance at events, resulting in less revenue relative to pre-construction events.

### **Effects on the Elderly**

The Proposed Action will limit available parking and pedestrian mobility on Main Street and Merchants Row, which may adversely impact the ability of the elderly to access the downtown area during construction.

### **Effects on Low Income Housing**

Low income housing units are present within the Study Area on South Pleasant Street. Based on the location of these units relative to the proposed construction and road closures, it is anticipated that occupants of these residences would experience effects due to the Proposed Action in the form of diminished pedestrian mobility due

to sidewalk closures. In addition, occupants of low-income housing may not have the means or opportunities to temporarily relocate during the construction period.

### **Effects on ADA Compliance**

The Proposed Action will have an adverse effect on handicapped access through the temporary loss of business-adjacent parking spaces on Main Street and Merchants Row during the ten-week closure period, including 5 handicapped spaces (three on Main Street and two on Merchants Row).

### **Effects of Construction Jobs**

As shown in **Table 3.15-3**, the Proposed Action will result in fluctuating construction employment projections based on the construction phase and year. There would be as many as 75+ construction-related jobs during the ten-week closure period in Year 3. The lowest construction job generation projection would be during the final phase of paving and landscaping when an average of five to ten construction related jobs will be generated.

**Table 3.15-3. Anticipated Construction Jobs**

<b>Year</b>	<b>Construction Activities</b>	<b>Number of Construction Workers</b>
1	Access Roads/Drainage/ Microtunneling/Utility Work	Average 12-16 over the duration
2	SOE Installation/Utility Work	Average 20 over the duration
3	Mobilization/Preparation	Average 20 leading into the ten-week outage
	ten-week closure	75+
	Post Closure	25+ working through balance of Year 3 and into Year 4
4	Final Paving/Landscaping	Average 5-10

The construction investment would provide a long-term benefit to the local, regional, and state economies. Although short-term adverse effects are anticipated as described above, this investment would also spur minor, secondary economic benefits during construction. As worker wages and payments to suppliers are spent, that money would be recirculated in the area economy. Certain businesses, such as eating and drinking establishments, retail stores, wholesalers, and service providers, may experience a beneficial effect from construction of the Proposed Action. In the short-term, it is expected that a total of 75 jobs would be supported by the construction of the Proposed Action.

### **3.15.5 Mitigation and Summary of Effects**

This section presents the proposed mitigation measures to offset the temporary, construction-related adverse effects discussed in the preceding section. Planned mitigation measures include:

- 1) Using Accelerated Bridge Construction (ABC) rather than conventional means of construction to expedite the construction process and minimize construction-related effects on downtown Middlebury;
- 2) Developing an accessibility plan for pedestrians and building deliveries;
- 3) Consulting other communities that have experienced disruptive downtown construction projects to learn about potential additional mitigation measures;
- 4) Employing a public outreach campaign and communicating construction status to area merchants and residents;
- 5) Understanding the requirements of the community and evaluating options to perform construction in a manner that minimizes effects on public events; and
- 6) Town efforts to encourage the local community and Town visitors to support local businesses.

Each of these measures is discussed in detail below.

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#### **3.15.5.1 Accelerated Bridge Construction**

Originally, the means of construction required that the VWRC be reopened every day to allow for the daily passage of VTR trains through the Project Area. The work windows were expected to be 20 hours per day, with four-hour daily shut downs between midnight and 4:00 AM to allow VTR train traffic to pass. Reestablishing a working track on a daily basis diminished the efficacy of the 20-hour work window, as a portion of this time period would be dedicated to resetting and removing the track rather than constructing Project components. This construction approach was estimated to require two full construction seasons to complete the tunnel section alone in addition to multiple construction seasons for the remaining 3000+ linear feet of railroad approach work. It was anticipated that one bridge would be closed at a time using this approach.

To greatly shorten the duration of construction activities and road closures resulting in limited access to the Middlebury Downtown Area, VTrans and VTR have come to an agreement in principle to detour train traffic around Middlebury for a ten-week period. The Proposed Action will use the ten-week detour period in conjunction with ABC, which will result in the relatively short ten-week road closure coincident with the rail detour. This approach essentially compresses two years of conventional

construction into ten weeks. As discussed in detail in **Section 2.5.**, the ten-week closure is planned to occur in June, July, and August of Year 3 of construction.

ABC is achievable because of the rail detour and because the proposed tunnel consists of precast concrete pieces that can be rapidly installed to replace the existing bridges. VTrans has successfully used full road closures with ABC on previous projects, for example, the Sand Hill Bridge replacement on VT 125 in East Middlebury. If the Sand Hill Bridge project had used conventional means (including the installation of a temporary bridge), the bridge replacement would have taken a full construction season, whereas by employing ABC the project took only 45 days to complete. A post-project survey showed that 85 percent of respondents were “very satisfied” with that project and the ABC process.

While there will be some disruption to normal access and circulation during the construction period, the disruption has been minimized to the maximum extent practicable. In addition to reducing the duration of construction as efficiently as possible as discussed above, mitigation measures have been developed to encourage and enable tourists, potential students and parent visitors, and local customers to have access to downtown during the construction period. To mitigate adverse impacts on social and economic factors associated with construction of the Proposed Action, the following measures are planned for implementation.

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#### **3.15.5.2 Public and Business / Institution / Church Access**

To facilitate access to the downtown core during construction of the Proposed Action, pedestrian, vehicular, and parking detours and wayfinding signage will remain clearly signed for the duration of the construction effort. Any changes will be communicated through the public outreach system outlined in **Section 3.15.5.3**. All businesses will be able to remain open and access will be ensured through contractual requirements contained in the Special Provisions section of the State's contract with the construction contractor (see **Section 3.15.5.5**).

#### **Parking**

An accessibility plan will be developed out of the Transportation Management Plan (**Section 3.2.5**) and articulated through the public information plan, which will be put in place to address accessibility concerns and to provide continuous access to business locations throughout construction. For example, alternative parking locations are being considered for business owners, residents, and shoppers. The directions to additional parking would be clearly marked, and an ADA-compliant shuttle bus is being planned to circulate through Town and transport the public from parking areas to both sides of the railroad corridor in the downtown area. An access

road to the Battell Block will also be provided to mitigate disruption of deliveries to that specific building. Following the completion of construction, existing parking spaces (including ADA compliant spaces) will be restored.

Remote parking areas that are currently underutilized will be available with shuttle bus service provided between the parking areas and downtown. Remote parking areas and shuttle bus routes have not been finalized at this time, but it is recommended that the shuttle service should be frequent, comprehensive, and on short paths to be effective and similar to the potential routes shown for illustrative purposes in **Map 3.15-6**. It is expected that the Town will establish designated remote parking areas and coordinate with ACTR to provide regular shuttle services from these lots to the downtown businesses. In addition, these efforts will be coordinated with ACTR routes in the downtown Middlebury area. Shuttle bus stops at remote parking lots will be ADA accessible and these lots will be temporarily striped with handicapped spots.

### **Vehicular Access**

See **Map 3.15-4** for road closures and limited access areas which will be available for deliveries and shuttle service during construction. While the normal process of deliveries by road during the ten-week closure of vehicular traffic on Main Street will be impacted from Seymour Street to Bakery Lane as well as on Merchants Row, deliveries will be accommodated as follows:

#### **Battell Block and Main Street South Deliveries**

Space will be reserved within the intersection of Main Street and Merchants Row exclusively for loading/unloading for the Battell Block businesses, as well as the several businesses fronting Main Street west of the railroad. This will necessarily have to be smaller delivery vehicles; there will not be sufficient space for tractor-trailers to temporarily park or execute a turn around, so only single unit and van-type vehicles will be permitted.

The construction of the Battell Block access road is a mitigation measure designed to provide for ongoing access to the parking lot at the rear of the building while the driveway is closed. This includes access for deliveries. The Battell Block has the remnants of a pre-existing loading dock but it is not known how much it is used now or what its use condition will be in the future. The Battell Block will remain accessible via Water Street but the size of vehicles getting to this area may be restricted.

While that portion of Printer's Alley alongside the north façade of the National Bank of Middlebury will have been previously closed to vehicles as a result of the installation of the temporary bridges in summer 2017, the segment of the road

connected to Maple Street will remain open, allowing access to the rear entrances to the Main Street businesses throughout. There may be some additional short-term limitations along Maple Street for access as the tunnel construction occurs along the rail line from Main Street towards the Fire Department.

**Post Office and Main Street North deliveries (including St. Stephens Church)**

Deliveries will be made via double parking along Main Street north of the existing crosswalk. The rear garage bays at the Post Office will remain accessible throughout construction.

**Pedestrian Access**

While there will be modifications to the pedestrian paths throughout the period of construction as shown in **Map 3.15-1**, all existing buildings within the construction area will have pedestrian access maintained throughout the construction period and directional signage will be provided. In addition, pedestrian access to the Marble Works via Main Street and Printer's Alley will also be maintained throughout construction. Secondary pedestrian access to the Marble Works will also be maintained throughout construction via the pedestrian bridge over the Otter Creek that connects to Mill Street. All open sidewalks that are currently ADA compliant will remain so when they are open during construction.

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**3.15.5.3 Consultations with Other  
Communities, Associations, and  
Stakeholders**

A number of Vermont communities have recently undergone downtown revitalization projects that involved limitations in road traffic and pedestrian accommodations. While the Project is primarily one of infrastructure replacement as opposed to purposeful revitalization, the Town and VTrans will nevertheless coordinate with the Vermont Department of Housing and Community Development as well as with other communities that have recently carried out extensive downtown transportation infrastructure construction projects to gather information on potential strategies to mitigate effects on local businesses, services, and residences. Examples of other municipalities include but are not limited to Barre City, Brandon, and St. Albans, Vermont and Littleton, New Hampshire, each of which have relevant experiences from their downtown revitalization projects. Coordination with these communities has already begun and will continue through the final design phase and in advance of construction taking place.

To understand what constitutes best practice in managing construction impacts on local communities, Middlebury town officials met in May with the Barre City Manager and a prominent member of the Barre City business community to learn how Barre

City managed the challenge to its business community of a four-year reconstruction of Main Street. This learning process, in which Barre City yielded several ideas for downtown promotions and communications strategies, will continue as town officials meet in the coming months with representatives of St. Albans, St. Johnsbury, Danville, and other Vermont towns that have recently managed through major infrastructure projects.

Lessons learned in communities beyond Vermont and New Hampshire for managing and mitigating impacts from downtown transportation construction projects will also be considered; an example from Madison, Wisconsin, provided by the Vermont Department of Housing and Community Development, is included in **Appendix I**.

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#### **3.15.5.4 Public Outreach Campaign**

Public outreach has been and will continue to be a key part of the mitigation for the Proposed Action. Since the beginning of the Project, there have been public meetings, regarding alternatives, and construction timelines, and anticipated impacts. The Project team, including VTrans, VHB, the contractor, and the Town, strive for open and continuous communication, and that is shown by establishing means of collecting and disseminating Project information, including a Project phone number (802-272-1248), E-alerts, a Project website (<http://vtrans.vermont.gov/projects/middlebury>) and scheduling tours of the Project Area. VTrans has made a concerted effort to listen to and understand the concerns expressed by Project Stakeholders and develop strategies to address these concerns. VTrans will continue with direct and coordinated stakeholder engagement, including working group discussions. Given that the most disruption to the downtown (the road closures) will not occur until the third construction season, there is sufficient time for partnerships to be established and for effective mitigation strategies to be conceptualized, refined, and brought to fruition.

In 2016, the Town of Middlebury hired a Community Liaison, Middlebury resident Jim Gish, to aid in communication between VTrans, VHB, and Town officials and residents. Since beginning his role, Gish has kept the Town apprised of changes and communicated its concerns to the Project team. Gish has done this through regular and frequent meetings with a broad range of stakeholders in Middlebury and in weekly meetings with the Project team in Montpelier.

Also in 2016, Jill Barrett of Fitzgerald & Halliday, Inc. (FHI) was hired by VTrans as the Public Outreach Coordinator. Barrett's role includes acting as liaison for VTrans' public outreach personnel and disseminating information before and during construction of the Proposed Action. Specific approaches have been identified to make the public aware of construction activities. Some approaches for potential

implementation in pre-construction planning and as ongoing measures while construction is underway include but are not limited to:

- Keep the existing Project website current with news regarding Project developments and use it as a clearinghouse for Project-related information.
- Hold weekly Project meetings between VTrans, the contractor, and the Town to review each week's scheduled operations. Merchants would be encouraged to attend.
- Communicate the construction schedule and alternative routing plans to the trucking industry and regional business community. This is important since three state highways converge on downtown Middlebury.
- Deliver weekly Project schedules digitally to the public via email and social media.
- Display Project plans in a visible downtown site.
- Install a webcam downtown so residents can monitor construction progress.
- Coordinate truck delivery times to local businesses with scheduled construction activity.

Gish and/or an equivalent liaison and/or Barrett will provide daily updates to the community during the construction of the Proposed Action.

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#### **3.15.5.5 Understanding the Requirements of the Community**

The Special Provisions section of the State's contract with the construction contractor will include language encouraging the contractor to coordinate with community stakeholders, business owners, and event organizers to reduce construction-related impacts where feasible. This may include the implementation of traffic control measures, coordinated hours of operation, and identifying local events to be avoided.

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#### **3.15.5.6 Town Efforts**

Town of Middlebury officials recognize their own responsibilities during a development of a project in their community and are committed both to taking a leadership position and to working collaboratively with a broad range of community leaders, downtown stakeholders, and organizations to preserve and protect the vitality of the downtown during the construction of the Proposed Action. The Town's partnership with VTrans is a key element in this strategy.

The Middlebury Selectboard has taken, and will continue to take, concrete steps designed to mitigate the social and economic impact of the construction of the

Proposed Action on the downtown. For example, a member of the Selectboard and the Town's Community Liaison for the Project (Jim Gish) are working with the steering committee of a local community action group called Neighbors Together, which was formed to advocate for the community during development of the alternatives and design through the construction phase, to develop and implement outreach ideas and downtown community events, as well as recruit volunteers, to promote the downtown business community during the construction of the Proposed Action. This committee includes representatives from Middlebury College, Town Hall Theater, the Middlebury Planning Commission, the Addison County Chamber of Commerce, the Better Middlebury Partnership (a downtown business community advocacy group), the Middlebury Selectboard, St. Stephen's Episcopal Church, the Town's Community Liaison, and VTrans.

Community meetings sponsored by Neighbors Together have yielded a wealth of ideas for engaging the community with its downtown during the construction of the Proposed Action. One initiative that has been widely discussed and would be coordinated by Neighbors Together is a series of downtown events – both one time and ongoing – designed to attract people into the center of town during the ten-week closure period, which coincides with what is typically the high-water mark for retail activity in Middlebury. The Neighbors Together steering committee will serve as a clearinghouse for ideas to mitigate construction-related effects, working collaboratively with the Town's stakeholders to plan, promote, and execute events.

In addition, the Middlebury Selectboard is considering the possibility of using the Town's Revolving Loan Fund to provide working capital loans for downtown businesses that may be impacted by construction of the Proposed Action, and the Town's Downtown District Improvement Commission has earmarked funds for marketing the downtown during construction. The Town will actively research sources of grants to support downtown life during Project construction.

The effort to mitigate construction-related impacts on businesses will focus in part on awareness and incentive campaigns to inform the public that downtown Middlebury is open for business and will include special events to encourage people to "come downtown." Such events can be used to provide the public with specific directions on business access. Construction tours and/or the establishment of construction viewing areas have also been discussed.

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#### **3.15.5.7 Summary of Effects**

The Proposed Action is anticipated to have a long-term, local, moderate beneficial effect on community cohesion and character through the reestablishment of the pre-railroad extent of the Village Green, improved sidewalks, and replacement of bridge

railing with aesthetically pleasing and safer railings. Public perception of improved safety is anticipated to be enhanced by the sidewalk and bridge railing improvements. The location of the former Lazarus Building will also be turned into a landscaped public park. A number of current overhead utilities will be placed underground, further enhancing the aesthetics of the area.

During the final design phase of the Proposed Action, public input on the design and landscaping of the reestablished Village Green is anticipated to contribute to the beneficial effect on community cohesion and character. When completed, the Proposed Action is anticipated to provide more culturally pleasing surroundings, with local residents and visitors using the expanded green space of the Village Green to view and interpret the historic setting in the center of the MVHD. Increased use of the expanded green space is anticipated to have a beneficial effect on adjoining retail businesses and restaurants.

While the Proposed Action will have unavoidable adverse effects on the social and economic life of downtown Middlebury during the temporary construction period, the Proposed Action has been designed to be constructed as expeditiously as possible and in a manner that minimizes the disturbance of daily life and business operations. During the ten-week closure period, construction activities will proceed on an accelerated schedule (24 hours a day and seven days per week) to return full vehicular and pedestrian traffic to Main Street and Merchants Row as well as to return the railroad traffic to the corridor as expeditiously as possible.

Additional measures are proposed to mitigate unavoidable adverse effects during the construction period, including but not limited to maintaining pedestrian access throughout the construction period; making provisions for deliveries to those buildings that front the roads closed during the ten-week closure period; implementing a shuttle bus system that will ferry people from a number of remote parking lots to stops adjacent to the area affected during the ten-week closure period; providing ADA compliant parking spaces in the remote parking lots; and engaging in robust public outreach to provide business owners, service providers, residents, and visitors with up-to-date information regarding accessibility. In addition to maximizing mobility within the Project Area during the construction period, VTTrans is committed to working with the Town to support their mitigation efforts. Given the proposed mitigation measures, the Proposed Action would have a short-term, minor to moderate adverse effect on the downtown area due to limitations on accessibility.

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## **3.16 Utilities and Emergency Services**

This section describes existing utilities within the Study Area, including water, wastewater, stormwater, electrical, and telecommunications lines. The latter two utilities include both underground and aboveground infrastructure. This section also describes emergency services, including law enforcement, fire and other emergency services. The environmental consequences of the No Action and Proposed Action to utilities and emergency services are described and avoidance, minimization, and mitigation of impacts to utilities and emergency services are discussed.

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### **3.16.1 Regulatory Context**

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#### **3.16.1.1 Utilities**

The design, construction, operation, and maintenance of water supply systems is regulated by the EPA under the Safe Drinking Water Act, and the treatment and discharge of wastewater is regulated by the EPA under the CWA. ANR administers the design, construction, operation and maintenance of water and wastewater systems under the Wastewater System and Potable Water Supply Rules (ANR 2007) and the Water Supply Rule (ANR 2010).

The design and construction of all electrical and telecommunications lines is governed by the Vermont Utilities Electric Service Requirement Manual, the National Electric Code, and the National Electric Safety Code.

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#### **3.16.1.2 Emergency Services**

The Town of Middlebury has adopted a Local Emergency Operations Plan (LEOP) which establishes steps to be taken during an emergency, defines points of contact, summarizes response and recovery guidelines, and outlines various planning tasks. Emergency response for a fire or release of material would be under the jurisdiction of the Vermont Department of Public Safety, Division of Fire Safety. Emergency response for a medical emergency would be under the jurisdiction of the Vermont Department of Health (DOH), Office of Emergency Medical Services (EMS).

Spills and releases of hazardous waste or materials that pose a threat to human health or the environment are regulated under the Vermont Hazardous Waste Management Regulations (ANR 2016b) and should be immediately reported to DEC in accordance with notification requirements. Additional Federal reporting may be required to the National Response Center (NRC) should any spills impact surface waters and meet the applicable notification requirements. The health and safety of construction workers, including those responding to releases of hazardous materials,

is regulated by OSHA under the Occupational Safety and Health Act of 1970, which is administered by Vermont OSHA (VOSHA), a division of the Vermont Department of Labor.

Railway accidents are reported, investigated and managed by the FRA in cooperation with VTR and emergency response actions related to the release of oil and/or hazardous materials (OHM) are managed by the local Fire Department and DEC Spill Response Team. The Addison County Emergency Planning Committee (ACEPC) assists with incident preparedness.

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### **3.16.2 Methodology**

Existing utility infrastructure was evaluated in the Study Area utilizing industry standard engineering research and surveying techniques and documented in existing conditions plans and other documentation. The impact from the Proposed Action was assessed in terms of removal, decommissioning, temporary servicing, and/or replacement activities. Emergency services that cover the Study Area were identified through communications with Town officials, and their ability to respond in the Study Area during and after the Proposed Action has been evaluated.

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### **3.16.3 Affected Environment**

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#### **3.16.3.1 Utilities**

Existing utilities located within the Project Area include waterlines, wastewater (sewer) lines, overhead and underground electric lines, and overhead and underground telecommunications lines. Stormwater infrastructure also exists throughout the Project Area but is discussed in **Section 3.4**. Primarily, these utilities are located along or within highway ROW within the Project Area, but other utility components may cross under or over the railroad track throughout the Project Area.

The surrounding area is supplied with potable water from the municipal system that obtains water from wells and springs located several miles to the east at a higher elevation than the Study Area. The surrounding area is also serviced by the municipal wastewater collection system and treated by the municipal wastewater treatment facility located approximately 1.5 miles north of the Project Area. The Proposed Action is not anticipated to increase the overall demand of the existing water or wastewater system; however, some of the underground infrastructure will be upgraded and relocated during construction of the Proposed Action.

The surrounding area is supplied with a combination of underground and overhead electric and telecommunications lines. The Proposed Action is not anticipated to

increase or change the overall demand of the existing electric and telecommunication utilities; however, some of the infrastructure will be upgraded and/or relocated as a result of the Proposed Action. Notably, some of the overhead lines will be undergrounded in the downtown area.

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### **3.16.3.2 Emergency Services**

Firefighting services are provided by the Middlebury Fire Department, which is located on Seymour Street just north of the intersection with Main Street (see **Map 1.2-2**). Ambulance and emergency medical services are provided by Middlebury Regional Emergency and Medical Services, Inc.. Other medical services are provided by the Porter Medical Center. The ambulance dispatch center and Porter Medical Center are located approximately 1 mile south of the intersection of Main Street and Merchants Row, at the Porter Medical Center campus on South Street in Middlebury.

Police services are provided by the local Middlebury Police Department, which is located just north of the Fire Department on Lucius Shaw Lane in Middlebury. Additionally, the Addison County Sheriff's Department is located on Court Street in Middlebury, and the closest Vermont State Police Barracks is located on US Route 7 in New Haven, Vermont.

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## **3.16.4 Environmental Consequences**

The environmental consequences of the Proposed Action to utilities and emergency services are described and avoidance, minimization and mitigation of impacts to utilities and emergency services are discussed.

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### **3.16.4.1 No Action**

Under the No Action Alternative, existing utilities and emergency services in the Project Area would continue as currently operated.

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### **3.16.4.2 Proposed Action**

#### **Utilities**

The Proposed Action would result in undergrounding some of the electric and telecommunication lines throughout the downtown area. This would have a permanent beneficial effect on the aesthetic nature of the downtown area. The Proposed Action would result in an upgrade of water and wastewater lines to current code requirements, which would have a permanent beneficial impact to the area, extending the service life of the water and wastewater facilities in Middlebury.

Due to utility upgrades during construction, some of the utilities would temporarily be unavailable to buildings and occupants in the downtown area. This would have a temporary adverse impact to the occupants of the downtown area that would be improved in the long-term due to improved infrastructure reliability.

## **Emergency Services**

The Proposed Action would have a temporary adverse impact on emergency response services. The current LEOP outlines which departments would respond to emergency actions, including such activities as road clearing and hazardous materials response. In the event of an emergency, the construction-phase crew would also likely be involved in any response actions. Methods for communications between the construction crew and local emergency responders is also not included in the LEOP.

As described previously, the construction of the Proposed Action includes a ten-week road closure and would include detours that may temporarily affect the ability of emergency services to respond to incidents in and around the Project Area. The change in response time would depend on the location of the emergency and the relative position of the responder (fire, police, ambulance). For example, because the Middlebury Police and Fire Departments are located to the east of the VWRC, any emergency happening in the vicinity of the east side of the bridge closure area would not be anticipated to experience a change in response time. However, an emergency occurring in the vicinity of the west side of the bridge closure area may experience an increase in response time. The detour route for an emergency on the west side of the VWRC would include Court Street and Cross Street. The longest detour route for fire and rescue response (approximately 3,700 feet) would be for an emergency occurring on the south side of the Main Street Bridge or west side of the Merchants Row Bridge. This detour route would be the same for the Police response from the police station, however depending on the position of patrol cars at the time of the emergency, there may be no change in response time for the first responder. Additionally, because of the positioning of the Addison County Sheriff's Department south of the Project Area at the intersection of Cross Street and US Route 7, no change in response time is anticipated.

The scenario for ambulance response from the south is similar to police and fire response, but in reverse. It is anticipated that emergencies occurring on the west side of the bridge closure area would not experience a change in response time, whereas those on the east side may experience an increase in response time due to the need to use the Cross Street and Court Street detour, increasing the travel distance by approximately 2,400 feet.

Though response time may be affected by detours, this would be a temporary condition during the ten-week closure period. While planned temporary lane closures may occur at other times during Project construction, response time is unlikely to be affected.

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### **3.16.5 Mitigation and Summary of Effects**

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#### **3.16.5.1 Utilities**

The Proposed Action would result in long-term, local, minor beneficial effects on utilities through replacement/upgrade of utilities in the Project area. Upgrades to municipal waterlines and sewer lines would minimize potential future effects to water quality and the environment by replacing aging pipelines under the railroad tracks and elsewhere in the Project Area.

Upgrades to the water and wastewater utilities would be completed in accordance with the State of Vermont, Environmental Protection Rules, Chapter 21 – Water Supply Rule (ANR 2010), and Wastewater System and Potable Water Supply Permit Rule (ANR 2007). Upgrades to electric and telecommunication utilities would be completed by certified personnel from the appropriate utility company and would be completed according to OSHA regulations.

To mitigate adverse effects during construction, reasonable efforts would be made to minimize disruption of water and sewer service to municipal water and sewer customers, and to provide effective and consistent communication to involve residents and business on upcoming disruptions, such that the resulting effect would be minor and local.

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#### **3.16.5.2 Emergency Services**

The Proposed Action would result in long-term beneficial impact for emergency services as improvements to transportation and pedestrian infrastructure would improve access in and around the Project Area. After Project construction, VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project to ensure VTR operations and existing protocols are considered. A long-term, local, minor benefit for emergency services would be realized through improved turning radii for access to the Battell Block and through Printer's Alley.

The Proposed Action would result in a temporary adverse impact on the response time for emergency services (*i.e.*, fire, police, ambulance) to certain incidences in and around the Project Area during the ten-week road closure, depending on the location of the incident. Vehicle detour routes will be provided including the Cross Street detour, and alternate access routes to the Battell Block parking area. Additionally,

VTrans will provide the Fire Department, Police Department, Sheriff's Department, ambulance services, and other emergency services with construction drawings that detail the construction zones, detour routes, temporary access roads, and traffic control plans. VTrans will also invite these parties to participate in pre-construction meetings, and ongoing updates will be provided to these parties during construction by the Project liaison (see **Section 3.15**).

Emergency response actions related to spills of OHM and/or construction-related accidents will require appropriate procedures that will be detailed in an ERP. This document will outline general emergency and safety procedures, points of contact, chain of command, spill containment and cleanup procedures, and follow up actions. Additional safety measures to mitigate emergencies during construction will include railway flaggers as required by VTR, pre-construction and ongoing tailboard safety meetings, and securing an on-call Emergency Spill Response Contractor.

The Proposed Action would result in short-term, local adverse effects on utilities and emergency services during construction due to temporary shutdowns and access limitations. However, given the proposed mitigation measures, these impacts would be minor.

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## 3.17 Hazardous / Contaminated Materials

This section describes potential and confirmed sources of subsurface contamination and/or waste materials within the Study Area and evaluates their potential effects on construction of the Proposed Action. This section also describes potential measures for avoiding and minimizing the effects of subsurface contamination and waste materials on the environment and public health and safety.

Surface water and groundwater quality conditions are discussed in **Section 3.4** and **Section 3.5**, and air quality conditions are discussed in **Section 3.9**.

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### 3.17.1 Regulatory Context

Subsurface contamination and waste materials are regulated under several Federal regulations, including the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). These Federal regulations are implemented in Vermont by ANR under the Vermont Hazardous Waste Management Regulations (ANR 2016b) and the Solid Waste Management Rules (ANR 2012a).

ANR has also published the Investigation and Remediation of Contaminated Properties Procedure (ANR 2012b), which, as its title suggests, provides guidance for the investigation and remediation of releases of hazardous materials. The Investigation and Remediation of Contaminated Properties Procedure (IROCP) provides guidance for responsible parties to use in determining what actions are needed to clean up contaminated media and provides contaminant threshold concentrations for soil, known as Soil Screening Values (SSVs), for both “residential” and “industrial” properties.

Treated wood waste, such as railroad ties, is regulated by ANR in accordance with the document “Environmental Fact Sheet for Managing Treated Wood Waste” (ANR 2015).

OSHA regulates the protection of worker safety and health in the workplace under the Occupational Safety and Health Act of 1970. OSHA regulations, including regulations pertaining to HAZWOPER, apply to workers involved in construction.

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### **3.17.2 Methodology**

A Phase I Environmental Site Assessment (Phase I ESA) was completed for the Study Area on June 24, 2016 and submitted to DEC Waste Management and Prevention Division (WMPD) for review (VHB 2016a). The Phase I ESA was completed in accordance with the American Society for Testing and Materials (ASTM) E-1527-13 Standard, which is used to identify the presence or likely presence of hazardous substances or contamination, also known as recognized environmental conditions (RECs), within the Study Area (VHB 2016a).

Based on the results of the Phase I ESA, a subsurface investigation work plan was completed and submitted to DEC on April 18, 2016, revised on June 24, 2016 (VHB 2016b), and approved by DEC on July 6, 2016. The work plan was developed to sample soil and groundwater within the Study Area to determine the condition of soil and groundwater associated with the identified RECs.

In July and August 2016, a total of 90 soil borings were advanced throughout the Study Area to characterize the environmental condition of soils both laterally and with depth. Soil samples were collected at depths consistent with proposed construction depths and where construction depths are proposed to be greater than six feet below existing grade, two to three soil samples were collected from each soil boring. Soil samples were analyzed for VOCs, SVOCs, RCRA 8 metals, TPH-DRO, TPH-GRO, pesticides, herbicides, and PCBs.

### **3.17.3 Affected Environment**

The Phase I ESA identified the presence of a state-listed hazardous waste site within the Study Area (HWS ID #2009-3912), the result of a release of gasoline following a train derailment that occurred in October 2007 (OCE 2015).

The subsequent site investigation determined that contaminants were detected in shallow soils throughout the Study Area, as follows:

- Arsenic was detected in all samples and exceeded the residential and/or industrial SSV.
- Select PAH compounds were detected in all samples and exceeded the residential and/or industrial SSVs.
- Select pesticide, and petroleum compounds were detected in some samples at concentrations below their respective residential SSV, and therefore are not considered to be contaminated over state or Federal requirements.
- PCE and TCE were detected in several of the soil samples; however, concentrations were below their respective residential SSV. The VT Hazardous Waste Rules list these compounds as hazardous wastes irrespective of concentration under certain conditions. A determination from DEC would be required to dispose of these soils as non-hazardous waste.
- A PCB congener (Aroclor-1268) was detected in the Drive 3 Receiving Shaft at 20 feet below existing grade, but the concentration was well below 1 mg/kg and below the residential SSV and so although PCBs were detected in this soil the concentrations are such that this is not considered to be contaminated over state or Federal requirements.

Soil quality within proposed excavation areas in the Study Area generally corresponds with urban background contaminants coupled with contaminants associated with the current and historic railroad operations. No evidence of gasoline contamination from the prior derailment was observed in soils, which indicates that residual contamination associated with this event is minimal.

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### **3.17.4 Environmental Consequences**

#### **3.17.4.1 No Action**

The No Action Alternative would mean contamination identified within the Study Area would remain in place and would have an ongoing adverse impact on the condition of soil and groundwater.

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#### **3.17.4.2 Proposed Action**

The Proposed Action would have a beneficial impact to the future use of these areas because some contaminated materials within the Study Area would be removed and replaced by clean backfill materials and surface materials would be put in place to mitigate any potential exposure pathway. Due to the implementation of these measures, improved soil and groundwater quality within the Study Area would be realized.

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#### **3.17.5 Mitigation and Summary of Effects**

The Proposed Action would have a minor beneficial effect since some of the existing contaminated materials would be removed during the construction phase. Soil and other contaminated materials that would be disturbed within the Study Area during construction would be properly handled and disposed of in accordance with a CAP and HASP. The CAP will be reviewed and approved by ANR prior to the onset of ground-disturbing activities. An Environmental Manager with OSHA HAZWOPER training who is experienced with the management of contaminated media will be on-site for construction observation during all days when contaminated materials are being handled or disturbed. Additionally, EPSC measures will be implemented during construction to minimize the potential migration of sediment and dust.

The Proposed Action would result in short-term, local adverse effects on contaminated materials during construction due to earth disturbance. However, given the mitigation measures described herein, these impacts would be minor.

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### **3.18 Visual / Aesthetic Resources**

This section describes the visual and aesthetic resources within and in the vicinity of the Study Area. It describes environmental consequences of the Project Action on those resources, in comparison to the No Action alternative, and discusses avoidance, minimization, and mitigation of effects on the resources.

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#### **3.18.1 Regulatory Context**

NEPA, as amended, establishes that the Federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. § 4331[b][2]). To further emphasize this point, FHWA, in its implementation of NEPA (23 U.S.C. § 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse

environmental impacts, including among others, the destruction or disruption of aesthetic values.

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### 3.18.2 Methodology

The Study Area for visual and aesthetic resources includes the proposed limits of disturbance for the Project. These limits are depicted on **Map 1.2-1**. Visual resources and key public views within and immediately adjacent to the proposed limits of disturbance were evaluated. Key views include those which have been recognized as such by planning documents or previous studies (*e.g.*, Middlebury Town Plan) or are views that are representative of the visual character of the area and may be affected by the Proposed Action.

The National Register nomination for the MVHD and the Determinations of Eligibility and Effect for the Project (see **Appendix G**) were reviewed to determine if any visual or aesthetic features are noted as being character-defining elements of those resources that contribute to the MVHD. The Town Plan (2012) was evaluated to determine if any visual or aesthetic resources are located within the Study Area. Proposed changes to visual and aesthetic resources arising from the No Action and Proposed Action and potential viewer response to those changes were analyzed. Potential measures to offset adverse effects on visual and aesthetic resources, through impact minimization or mitigation, were considered.

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### 3.18.3 Affected Environment

The Study Area for visual and aesthetic resources is located within the MVHD. The historic district in the Study Area includes the Village Green (inclusive of the Triangle Park area), which is fronted by historic buildings ranging in architectural style and construction date (ca. late 18<sup>th</sup> century to the early 20<sup>th</sup> century). The Determination of Effect notes that the view of the railroad track and stone retaining walls between the Main Street and Merchants Row bridges may contribute to the MVHD and RRHD.

Key views within the Study Area include that of the Village Green (including the Triangle Park area), which can be seen from multiple vantage points at street level and from inside the abutting buildings. The Village Green is a triangular-shaped park that represents the physical and functional center of the town (Roomet, L. 1976). It contains a number of mature trees planted in planned formation with a maintained lawn and a bandstand. A number of pedestrian pathways bisect the park, connecting it with sidewalks on Main Street, North Pleasant Street, and Merchants Row. St. Stephen's Episcopal Church is located within the Village Green and a landscaped walkway to the Church entrance lies between the west façade and the VWRC track, separated from the latter by a black metal fence. The Triangle Park area of the Village

Green includes pedestrian ways, ornamental gardens, and a fountain. Based on the Town Plan (2012), additional key views near or through the Study Area and in the vicinity of the Village Green include the view up Merchants Row to the *Middlebury to Her Soldiers* monument, the Town Hall Theater, and the Congregational Church as seen from the west looking down the corridor of Main Street. The National Register nomination for the MVHD similarly mentions this latter view similarly, that the hill at the northeast corner of the Village Green “forms the dominant topographical and visual backdrop of the district.”

Additional key public views within the Study Area include the view of the track from the bridges, including the area between the bridges and the view north from the Main Street bridge and south from the Merchants Row bridge. These views include the track and portions of the wing/retaining walls that contribute to the MVHD and RRHD, though those components under the bridges (e.g., portions of the ashlar block abutments) are not readily visible from public places. Additional details regarding the construction and material composition of the wing/retaining walls can be found in **Section 1.2**.

As noted in **Section 3.12.3.2**, the view of the tracks varies according to the extent of vegetation present and the season. The corridor is generally more visible during the winter months when the deciduous trees have dropped their foliage. Additionally, as required by FRA track safety regulations (see 49 C.F.R. § 213.37), tree and shrub clearing occurs routinely to ensure the track is not fouled by downed vegetation. Though the viewshed of the track is increased by such maintenance activities, the extent and appearance of these view changes is minimized as the vegetation regrows and matures.

Additional key public views within of the Study Area include:

- The riparian corridor along Otter Creek south of the Battell Block towards the Cross Street bridge as seen looking south from the Battell Bridge. The view of the Otter Creek from the Battell Bridge is a scenic resource noted in the Town Plan (2012).
- The proposed temporary stormwater access road and stormwater outfall location north of the Otter Creek Falls as seen from Marble Works Riverfront Park. Marble Works Riverfront Park includes a stone amphitheater facing the Otter Creek Falls. The park is landscaped with native grasses and shrubs as well as rain gardens. Access to the Otter Creek is provided via an accessible path to/from the upper park area, and lighting and interpretive signage has been designed to reflect the historic mill use of the area. Middlebury residents use the park for festivals, picnicking, and enjoying the scenery. The

Town Plan (2012) notes that the Otter Creek Falls have growing scenic and aesthetic value to the downtown area.

The Lake Champlain Byway is a scenic highway that runs through the Project area but does not intersect the Study Area for visual and aesthetic resources.

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### **3.18.4 Environmental Consequences**

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#### **3.18.4.1 No Action**

Under the No Action Alternative, existing visual and aesthetic resources in the Project Area would remain largely unchanged. Maintenance of vegetation along the VWRC would periodically alter the viewshed of the track. The view of the riparian corridor along the Otter Creek south of the Battell Block would change naturally over time, though hazard trees may need to be removed proactively to ensure safe rail operations.

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#### **3.18.4.2 Proposed Action**

The Proposed Action would result in changes to the key views described in **Section 3.18.3** above. Within the Village Green and Triangle Park area, the reestablishment of the pre-railroad extent of the park, including the removal of trees along the entrenched section of track between the bridges, would alter the viewshed. For some viewers, the removal of mature woody vegetation overhanging the north Merchants Row sidewalk and to a lesser extent the east Main Street sidewalk would represent an adverse visual effect. This vegetation currently partially obscures the VWRC track and offers shade to pedestrians along Merchants Row. Some viewers may also consider the removal of the fencing that separates the VWRC track from the Triangle Park area and St. Stephens Church to represent an adverse visual and aesthetic effect, when considered in conjunction with the planned gardens to which they offer a backdrop.

Under the Proposed Action, the Triangle Park area would be more visible from the remainder of the Village Green and directly accessible, and vice versa. Though design plans for the reestablished park are pending, this reconnection is anticipated to create a sense of more open space and accessibility in the downtown area. For local residents, the reestablishment of the park is anticipated to represent a very noticeable change in the visual character of the downtown area. To some, the associated removal of vegetation and the transition of the Triangle Park area from a discrete and intimate mini-park setting to an extension of the larger green may represent an adverse effect. However, the creation of a planned park setting is also anticipated to promote a sense of permanence relative to the No Action scenario, which is subject to change in its visual character due to occasional maintenance of woody vegetation

along the entrenched section of track between the bridges. Additionally, the undergrounding of overhead utilities that currently enter the Village Green at the south end of St. Stephens Church would remove an unattractive visual intrusion into the park setting. This more planned, permanent, and less cluttered setting, coupled with the increase in useable green and longer viewsheds from multiple vantage points along Main Street and Merchants Row, may promote a feeling of expansiveness in the viewer and foster a greater appreciation for the aesthetic character of the historic buildings fronting the Village Green, enhancing a sense of community cohesion. The view of the public using the expanded green to relaxation and recreation and for public events is anticipated to add to this sense of community cohesion. As such, the reestablishment of the Village Green is anticipated to have a beneficial effect for some viewers. The substantial improvements in sidewalk conditions and removal of deteriorated bridge railings, to which visually incongruent chain link fencing has been added as an interim safety measure, is anticipated to have a beneficial visual and aesthetic effect for most viewers.

The scenic views of the *Middlebury to Her Soldiers* monument from Merchants Row and of the Congregational Church from Main Street are not anticipated to be altered substantially by the Proposed Action. The appreciation of view these features depends on the vantage point and personal preference of the viewer, and the Village Green represents only a partial component of these scenic views. The view of the Town Hall Theater is not anticipated to be altered by the Proposed Action, as the proposed improvements do not provide a backdrop or are adjacent to this historic building.

Under the Proposed Action, the key views of the VWRC looking north from Main Street and south from Merchants Row would remain from the reconstructed sidewalks. However, the key view of the VWRC between the Main Street and Merchants Row bridges would be permanently lost. This represents the removal of a long-standing view of the historic rail corridor, the fabric of which (*i.e.*, wing/retaining walls and bridge abutments) can be observed from the sidewalks of both bridges. To some viewers, this may represent an adverse visual and aesthetic effect. To other (and perhaps the majority of viewers), the removal of the view of the railroad track, the cessation of associated train noise, and the repurposing of the area for park use would be considered a beneficial visual and aesthetic effect. Based on the audience polling results from the Local Concerns Meeting (see **Appendix L**), only 26 percent of the attendees considered the railroad bridges and stone walls to have an important contribution to the aesthetics of the downtown area, with 55 percent disagreeing and 18 percent neutral. At this same meeting, 82 percent of attendees supported the idea of a tunnel concept.

The key view of the Otter Creek riparian corridor from the Battell Block bridge would be altered by tree clearing required under the Proposed Action. Much of the mature, woody vegetation along the river bank would be removed during construction, which would make the view of the VWRC more noticeable. Post-construction, the area would be revegetated in accordance with a restoration plan, and the area allowed to grow back to a forested setting, with the exception of the removal of potential hazard trees as per current VTR protocols. The removal of riparian vegetation would result in a noticeable change in the character of the scenic view of the Otter Creek and is anticipated to be considered an adverse visual and aesthetic effect for most viewers until such time that woody vegetation matures.

The key view of the stormwater access road from Marble Works Riverfront Park would not be adverse, as this area would be restored after construction. The key view of the stormwater outfall would be changed, as tree clearing would be required to install the outfall. Vegetation management, including the removal of large woody vegetation, would be carried out to ensure access for future maintenance or emergency access and prevent root or windthrow damage to the structure. This change in the visual setting from wooded to maintained would result in a minor adverse visual and aesthetic effect for some viewers. However, the positioning of the outfall is such that the scenic view of the Otter Creek Falls would not be altered under the Proposed Action. Select tree removal along the western perimeter of the park is not anticipated to result in an adverse visual or aesthetic effect on the park setting, as many trees would remain in this area.

### **Temporary Construction Effects**

During construction of the Proposed Action, key views would be temporarily and adversely affected by the positioning of construction equipment and by construction-related noise. Construction-related visual and aesthetic effects may contribute to some degree to a decreased visitation of portions of the downtown area by residents and visitors.

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### **3.18.5 Mitigation and Summary of Effects**

The Proposed Action is fundamentally a bridge replacement project, and therefore does not represent the introduction of a new transportation use. The Project occurs within a previously developed, urban area, and improvements would occur along the existing rail alignment and primarily within the existing ROW. According to the public polling results from the Alternatives Presentation Meeting (**Appendix L**), every attendee agreed that the aesthetics of downtown Middlebury are important. However, at this same meeting, only 10 percent of the attendees considered visual impacts to be the Project issue they are most concerned about whereas 74 percent

felt the tunnel alternative would have a positive impact on public spaces in historic downtown Middlebury.

The visual and aesthetic effects of the Proposed Action are anticipated to vary by person. As previously discussed, some members of the public may find an adverse effect in the removal of trees between the Merchants Row and Main Street bridges and the change in the setting of the Triangle Park component of the Village Green from intimate park to an extension of the larger green. However, based on public support for the tunnel alternative as reflected in polling results from the Local Concerns Meeting and Alternatives Presentation Meeting, it is anticipated that the majority of the public considers the reestablishment of the historic extent of the Village Green to represent a beneficial visual and aesthetic effect.

A number of mitigation measures would offset adverse visual and aesthetic effects of the Proposed Action:

- a restoration plan would be developed for that portion of the riparian corridor cleared for construction of the Proposed Action;
- the public would be invited to provide input on the design and landscaping of the reestablished Village Green, promoting a sense of community cohesion and allowing for aesthetic preferences to be recognized and incorporated;
- the installation of interpretive signage on the Village Green will enhance the public understanding and appreciation of Middlebury's history and the buildings fronting the Village Green (see **Section 3.12.4.1**);
- The VTrans Historic Preservation Officer must review and approve the design of the tunnel ends to ensure compatibility with the character of the MVHD (see **Section 3.12.4.2**);
- overhead utilities entering the Village Green south of St. Stephen's Church would be undergrounded, an action that is consistent with the Town Plan, which notes that "Important vistas within the village are marred by the location of utility poles and lines."

In summary, the Proposed Action is anticipated to have a long-term, local, minor to moderate adverse visual and aesthetic effect for most viewers due to the removal of riparian vegetation along the Otter Creek as viewed from the Battell Bridge. The Proposed Action is anticipated to have a minor to moderate beneficial visual and aesthetic effect resulting from the reestablishment of the pre-railroad extent of the Village Green, which would enhance the opportunity to view and appreciate the historic buildings fronting the park and provide additional space for passive recreational experiences or events in a manner consistent with the original purpose of the village greens that are present throughout Vermont. The reestablishment of the

historic Village Green would result in a more productive and aesthetically and culturally pleasing park area.

Visual and aesthetic effects during the construction of the Proposed Action are anticipated to be minor to moderate, short-term, local, and adverse.

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## 3.19 Cumulative Impacts

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### 3.19.1 Cumulative Impact Framework

For purposes of NEPA, a comprehensive evaluation of the impacts of Federal actions on the environment must consider not only the direct impacts of the Proposed Action, but must also disclose past, present, and reasonably foreseeable indirect effects and cumulative impacts.

The direct and indirect effects of the Proposed Action are discussed in depth in the preceding sections of this Chapter. The purpose of this section of the EA is to discuss other actions that contribute to cumulative impacts on the resources affected by the Proposed Action.

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#### 3.19.1.1 Regulatory Context

Cumulative impacts are “*environmental impacts resulting from the incremental effects of an activity when added to other past, present and reasonably foreseeable future activities regardless of what entities undertake such actions. Cumulative effects can result from individually minor but collectively significant activities taking place over time and over a broad geographic scale, and can include both direct and indirect impacts.*” (40 C.F.R. §1508.7)

FHWA and CEQ guidance states that the purpose of a cumulative impacts analysis is to look for impacts that may be minimal and therefore neither significant nor adverse when examined within the context of the Proposed Action, but that may accumulate and become both significant and adverse over a large number of actions. Cumulative impacts are not causally linked to the Federal action, but are of interest where other actions may impact the same resources which are impacted by the Federal action. For the purpose of this analysis, only long-term impacts are considered. Short-term, temporary construction-related impacts are not considered.

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#### 3.19.1.2 Methodology

A cumulative impacts evaluation is therefore resource-specific and performed for the environmental resources directly impacted by a Federal action under study. However,

not all of the resources directly impacted by a project will require a cumulative impact analysis. Only those resources that have long-term effects (*i.e.*, other than temporary, construction-phase impacts) are considered. For those resources, the analysis evaluates how the Proposed Action contributes to cumulative impacts on the resource.

In defining the contribution of the Proposed Action to cumulative impacts, the following terminology is used:

- **Imperceptible:** The incremental effect contributed by the Proposed Action to the overall cumulative impact is such a small increment that it is either impossible or extremely difficult to discern.
- **Noticeable:** The incremental effect contributed by the Proposed Action, while evident and observable, is still relatively small in proportion to the overall cumulative impact.
- **Appreciable:** The incremental effect contributed by the Proposed Action constitutes a large portion of the overall cumulative impact.

For purposes of this EA, the Town Planner and Addison County Regional Planning Commission were contacted to inquire as to other past, present, and reasonably foreseeable future actions located within or nearby to the Study Area. Based on the information obtained, the evaluation of cumulative impacts is broken down into two sections: 1) Roadway Projects and 2) Rail Projects. Information regarding the projects presented in this section is included in **Appendix J**.

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## 3.19.2 Roadway Projects

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### 3.19.2.1 Project Descriptions

The following roadway projects were identified for the consideration of cumulative impacts. The locations of these projects are shown on **Map 3.19-1**.

#### **Past**

- Construction of the Cross Street Bridge and Main Street Roundabout (2010)
- Reconstruction of the Pulp Mill Covered Bridge (2012)
- Creek Road Sidewalk Project [VTrans Project STP SRIN(39)], involving approximately 1,400 feet of concrete sidewalk with curb along Creek Road (2016)
- Reconstruction of Creek Road adjacent to the Otter Creek (2016)

- Middlebury Visitor Services Project, including the installation of parking and wayfinding signs (2016)

### **Present**

- No relevant projects identified

### **Future**

- Potential permanent relocation of ACTR Merchants Row hub
- Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project [VTrans Project STP EH10(5)] (planned 2017/2018)
- Middlebury Exchange Street Pedestrian Project (planned 2018)

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#### **3.19.2.2 Known or Potential Resource Impacts**

Like the Middlebury Bridge and Rail Project, many of the roadway and pedestrian projects identified for cumulative effects were or will be subject to review under NEPA. These include the reconstruction of the Pulp Mill Covered Bridge, Creek Road Sidewalk Project, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the Middlebury Exchange Street Pedestrian Project, and the Middlebury Visitor Services Project. Those resources affected by the Proposed Action and by these projects are discussed below.

### **Wetlands**

In addition to the Proposed Action, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project may, depending on its design, have minor impacts to two Class II wetlands and/or their buffers: 1) near the intersection of Pulp Mill Road and Weybridge Street and 2) just east of the Pulp Mill Bridge on the south side of Seymour Street.

According to the ANR Natural Resources Atlas, presumptive Class II wetlands are present on both sides of Exchange Street in multiple locations such that the 50-foot wetland buffer encroaches on the edge of or intersects the roadway. In a 2015 application to the VTrans Bicycle & Pedestrian Grant Program, the Town noted that "...preliminary investigations indicate that there are regulated wetlands that may impact walkway design."

### **Surface Waters**

In a 2015 application to the VTrans Bicycle & Pedestrian Grant Program, the Town noted that the Middlebury Exchange Street Pedestrian Project "...must consider its

impact to storm water conveyance off Exchange Street.” In addition, a stream crossing is mapped roughly 320 feet south of the intersection of Exchange Street with Mainelli Road.

### **Threatened and Endangered Species**

Two state-listed mussel species were determined to be present in the Otter Creek within the limits of disturbance for the Cross Street Bridge Project: the listed threatened giant floater (*Pyganodon grandis*) and the listed endangered fluted-shell (*Lasmigona costata*). An Endangered and Threatened Species Permit issued by the FWD was required to remove listed mussel species from the proposed construction zone and relocate them to an approved site upstream of that project.

### **Parks, Recreation, and Conservation Land**

The Middlebury Visitor Services Project is anticipated to encourage use of public parks. Its goal is to attract drivers and pedestrians to the Mill Street parking lot, which include interpretive signage and is located in close proximity to the Otter Creek Falls basin and Marble Works Riverfront Park.

### **Acquisitions / ROW**

The construction of the Cross Street Bridge and Main Street Roundabout involved acquisition of temporary and permanent easements, as well as acquisition of real property in fee. Property acquisitions took place along Cross Street, Court Street, Main Street, Academy Street, and the Bakery Lane area.

The construction of the Creek Road Sidewalk Project involved crossing existing accesses to commercial properties as well as accesses to the new municipal gymnasium. In addition, mail boxes and signs were permanently relocated.

Based on the scoping report for the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the ROW for Pulp Mill Road is narrow compared with Seymour Street, and permanent easements are likely to be required based on the desired sidewalk layout being set back from the road. Curbing and related drainage infrastructure may require permanent drainage easements.

At this time, it is unclear if the potential permanent relocation of the ACTR bus station will involve ROW acquisition.

## Social and Economic Considerations

The Proposed Action is anticipated to have a long-term, beneficial effect on Social and Economic Concerns through the reestablishment of the pre-railroad extent of the Village Green, offering additional green space and less train-related noise in the area between the former bridges as well as simplified pedestrian connections between park elements. All of the other roadway and pedestrian projects similarly aspire to improve conditions for the commuting or recreating public.

The Middlebury Exchange Street Pedestrian Project is strongly supported by the Addison County Regional Planning Commission (ACRPC). In a letter to the Town Manager, dated July 16, 2015, the ACRPC notes that,

*"...having this infrastructure will be a selling point to businesses considering relocation to Middlebury and also to potential employees of all businesses in the Industrial Park."*

The purpose of the Middlebury Visitor Services Project

*"...is to provide Middlebury visitors wayfinding information to access municipal parking areas and to specifically attract drivers and pedestrians to the Mill Street Parking Lot. The Mill Street Lot is the location of 1) the Visitor Services Interpretive Sign #1 titled Middlebury All Year Long, which provides information on recreational and cultural activities in the Middlebury area, and 2) ample parking for visitors including 6 parking spaces for electric vehicles and designated overnight parking. Additionally, the Mill Street lot is located adjacent to the Otter Creek Falls basin where there are a number of areas allowing river access for kayaking, fishing or exploring the river; the lot is also an ideal spot to begin a bicycle ride on one of the nearby Lake Champlain Bikeway routes."*

The purpose of the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project

*"...is to improve the safety of the increasing number of residents from both Towns [Weybridge and Middlebury] who use the area roadways for daily fitness walking, commuting and other pedestrian activities. The purpose is to create an environment of increased comfort for all transportation users in the project area including bicyclists and motorists."*

## Hazardous and Contaminated Materials

As discussed in **Section 3.17**, the Proposed Action is anticipated to have a long-term, indirect beneficial effect on hazardous materials via the removal and proper disposal

of contaminated soils and replacement by clean backfill materials or placement of appropriate barriers to mitigate any potential exposure pathway.

It is unclear if any of the roadway and pedestrian projects would involve the removal or replacement of contaminated soils or if such actions would have beneficial effects. However, construction of these improvements would be required to comply with similar environmental regulations governing the handling and proper disposal of contaminated soil.

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### 3.19.3 Rail Projects

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#### 3.19.3.1 Project Descriptions

The following rail projects were identified for the consideration of cumulative impacts. The locations of these projects are shown on **Map 3.19-1**.

##### Past

- No relevant projects identified. The rehabilitation of the Otter Creek Truss Bridge No. 239, completed in 2016, did not have any adverse effects on resources based on VTrans NEPA documentation.

##### Present

- Middlebury Emergency Bridge Replacement Project [Middlebury Federal-aid Project No. Middlebury EWP3(1)]: The removal of the pier and superstructure of Bridge No. 102 on Main Street and Bridge No. 2 on Merchants Row and placement of temporary decks, placement of a temporary pedestrian bridge deck along Main Street, construction of approach retaining walls, construction of roadway approaches to the new temporary bridge decks and other roadway related items.

##### Future

- Construction of rail station platform for anticipated extension of Amtrak Ethan Allen Express from Rutland to Burlington, funded in part with an award from the TIGER VII Discretionary Grant program (planned 2020).
- The replacement of eight rail bridges along the corridor from Rutland to Burlington having vertical clearances that fail to meet the minimum vertical clearances noted in **Table 2.2-1**.

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### **3.19.3.2 Known or Potential Resource Impacts**

#### **Historic Resources**

The removal of elements of the historic bridges for the Middlebury Emergency Bridge Replacement Project results in an Adverse Effect to historic resources. This project is subject to review under NEPA and Section 106. Depending on the location selected for the Middlebury rail station platform, the improvements may lie within the MVHD and would lie within or abut the RRHD. As the Project would be a part of larger improvements on the VWRC funded in part by the Federal government, the Project improvements would require a review under NEPA and Section 106, among other regulatory programs. As no location or conceptual design have been advanced, it is not possible to determine if the Project would have an effect on either historic district or contributing structures within these districts.

The replacement of those existing rail bridges having vertical clearances that fail to meet the minimum may result in adverse effects on the structures themselves (if deemed to be individually eligible for listing on the National Register or as a contributing resource to the RRHD). If historic resources are required to be removed, appropriate mitigation measures will be applied.

#### **Social and Economic Considerations**

The reestablishment of a rail platform and Amtrak service in Middlebury is anticipated to result in long-term, beneficial effects on the local and regional economy. As presented in the TIGER VII Grant application:

*“Currently, eleven of the fifteen towns along the line are Federally classified as economically distressed areas with income levels below the national average. The lack of rail mobility options has hampered residents’ access to good-paying, high-quality jobs. The project’s new passenger stations in Burlington, Middlebury, and Vergennes will grow into anchors of new residential and business development as residents will be able to walk to a rail station and to commute to work or access a host of educational and medical services. Dozens of new long-term jobs will result from this investment, which are critical for the thousands of residents along the corridor without access to an automobile, especially for vulnerable populations, such as immigrant and refugee residents, who rely on jobs and services along the 65-mile corridor.*

*Tourists and business travelers from throughout the northeast will be able to access the region with intercity passenger service. The region’s seven colleges will also thrive from increased mobility for Vermonters and visitor. The lack*

*transportation options for potential students - who overwhelmingly do not have access to an automobile - limits their attractiveness.” (Page 1 of Grant Application, **Appendix J**)*

*“New stations will serve as anchor points for residential and commercial development, sparking entrepreneurship and new businesses. The vast majority of jobs in the area are small businesses. In the past two decades, Vermont’s economy has transformed from a primarily resource-extraction based economy to a growing commercial and services economy.*

*The project will also improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers. The western corridor rail line is an employment corridor – 193,370 out of the State’s 426,036 jobs (45 percent) are located within the three counties which constitute the project area – Addison, Chittenden, and Rutland. The Vermont State Rail Plan (currently under development) has set a goal of two daily return trips along this corridor.*

*This project will provide an important tool to revitalize communities along the rail line by attracting private investment and creating jobs. It will also spur residential development, thereby increasing the supply of affordable housing.” (Pages 13-14, of Grant Application, **Appendix J**)*

The Town of Middlebury qualifies as an Economically Distressed Area (EDA), with the per capita income being 64.2 percent of the national average (see Grant Application, **Appendix J**). For Middlebury and the ten other towns that similarly qualify along the proposed passenger rail corridor between Rutland and Burlington, “...the promise of quality and reliable passenger rail services to the Burlington higher education and labor markets provides real ladders of opportunity for Rutland and Addison County residents.” (VTrans 2015).

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### **3.19.5 Conclusion**

The incremental effects of the Proposed Action, when considered in combination with that of the past, present, and reasonably foreseeable actions noted above, is discussed below.

When considered in association with the Creek Road Sidewalk Project, the Seymour Street/Pulp Mill Bridge Road Bike and Pedestrian Project, the Middlebury Visitor Services Project, and the proposed rail platform, the Proposed Action would contribute in a noticeable beneficial increment to cumulative impacts on Parks, Recreation, and Conservation Land and Social and Economic Concerns.

The Proposed Action is anticipated to contribute an imperceptible adverse increment to cumulative impacts on historic resources. This outcome recognizes how the proposed Standard Mitigation Measures and Project-specific mitigation measures offset the adverse on historic resources and how the improvements to the Village Green are expected to enhance appreciation and awareness of the resources of the MVHD.

In comparison with the other projects analyzed for cumulative impacts, the Proposed Action is also anticipated to contribute an imperceptible adverse increment to cumulative impacts on Wetlands due to the construction of the stormwater outfall near the Cross Street Bridge pier. In recognition of the stormwater improvements discussion in **Section 3.4**, the Proposed Action is anticipated to contribute an imperceptible beneficial increment to cumulative impacts on Surface Waters.

When considered relative to the other projects analyzed for cumulative impacts, the Proposed Action is anticipated to contribute an imperceptible adverse increment to cumulative impacts on Threatened and Endangered Species, specifically the Indiana bat and northern long-eared bat. This analysis considered both the removal of PRTs and the proposed mitigation measures (see **Section 3.8**).

Based on the complexity of the Proposed Action and the fact that the Project Area is an urban environment with multiple parcels abutting the ROW, the Proposed Action will contribute a noticeable adverse increment to cumulative impacts on Acquisitions/ROW.

The Proposed Action is anticipated to contribute an imperceptible beneficial increment to cumulative impacts on Hazardous/Contaminated Materials due to the proposed removal of contaminated materials from the Project Area.

Based on the evaluation of the cumulative impacts on resources that have, will, or are anticipated to be affected by the selected projects and the Proposed Action, the latter is expected to contribute only a minor overall cumulative impact. Each project has mitigated or would mitigate its individual impacts. Each project contributes a beneficial increment to Social and Economic Concerns. Based on this finding, no additional mitigation or action is warranted beyond that provided for the Project-specific effects discussed in the preceding sections of **Chapter 3**.

## 3.20 Summary of Mitigation and Project Commitments

The following commitments have been or would be made by FHWA, VTrans, and the Town of Middlebury to avoid or mitigate possible effects associated with the Proposed Action. These commitments are presented by resource area as described in the preceding sections of this chapter.

### Traffic

1. To accommodate the ten-week road closure, a Transportation Management Plan (TMP) is being developed to include a series of traffic detours to re-route vehicular, bicycle, and pedestrian traffic around the closures.
2. To accommodate the ten-week rail closure, VTrans is working with the railroad to establish a regional detour.
3. To accommodate the closure of Printer's Alley, the TMP includes a pedestrian detour to connect Main Street to Maple Street.
4. The Proposed Action includes a temporary access road (via Water Street) to provide access to the Battell Block off-street parking area.
5. Parking closures and restrictions will be partially mitigated by increasing parking along South Pleasant Street, which will be converted to one-way operations and the establishment of remote parking areas with shuttle bus access to downtown.

### Wetlands

6. The Project will also employ BMPs, which include minimization of clearing of woody vegetation, installation of EPSC measures, and restoration of all areas of temporary disturbance in wetland buffers following construction with seed and the replanting of woody vegetation where feasible and appropriate.

### Surface Water

7. Implementation of EPSC measures and routine inspection thereof by an On-Site Plan Coordinator (OSPC) will occur during construction in accordance with the requirements of Construction Stormwater Discharge Permit.
8. During construction, a qualified Environmental Manager will monitor the discharge water and Otter Creek for VOCs, arsenic and lead and turbidity. An

Environmental Manager will be on-site for construction observation when groundwater discharge is being conducted to ensure that the discharge is being properly managed. Monitoring of other constituents may be required by the NPDES Permit.

9. Surface water quality will be protected by the management of stormwater runoff using infrastructure designed for the operational phase of the Project.
10. VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project to ensure VTR operations and existing protocols are considered. The LEOP will be amendment in coordination with the Middlebury Fire Department to include management of any spills of oil or hazardous material which may occur within close proximity to the stormwater system.

### **Groundwater and Drinking Water**

11. Contaminated groundwater encountered within the Study Area during construction will be managed in accordance with a CAP, NPDES Permit, and HASP. An Environmental Manager will be on-site for construction observation when groundwater discharge is being conducted to ensure that the discharge is being properly managed.

### **Floodplains and Floodways**

12. During construction, adherence to the design plans will be monitored to ensure that fills placed adjacent to the Otter Creek do not exceed approved quantities and are in compliance with the NFIP standards.
13. A survey of as-built conditions will be prepared by a licensed land surveyor or professional engineer and will be submitted to the Floodplain Manager when the Project is complete.

### **Wildlife and Wildlife Habitat**

14. The Project will implement EPSC measures to limit potential effects on aquatic and semi-aquatic species.

### **Threatened and Endangered Species**

15. Mitigation measures pertaining to state and Federally listed bat species to offset potential and anticipated impacts include additional pre-construction

investigative surveys, adherence to time-of-year restrictions for tree clearing, the installation of artificial roost sites, and revegetation of riparian areas.

## **Air Quality**

16. The contractor will be required to adhere to all applicable regulations regarding controls of construction vehicle emissions. This will include, but is not limited to, maintenance of all motor vehicles, machinery, and equipment associated with construction activities and proper fitting of equipment with mufflers or other regulatory-required emissions control devices.
17. The Contractor will be responsible for protective measures around the construction and demolition work to protect pedestrians and prevent dust and debris from leaving the site or entering the surrounding community. EPSC measures will be implemented during construction in accordance with the Project's construction phase stormwater discharge permit, including deployment of BMPs for dust control.
18. Excavation of potentially contaminated soils will be overseen by a qualified Environmental Manager in accordance with the CAP.

## **Noise and Vibration**

19. Mitigation will be implemented for nighttime activities in the area near Middle Seymour Street to minimize potential impact. Best management practices will be used to minimize construction noise as feasible and reasonable, including ensuring that equipment is functioning, using quieter construction methods, replacing back-up alarms with strobes, and maintaining regular and effective communication and public outreach, among other things.
20. To minimize the risk of construction vibration causing structural damage to nearby buildings, a substantially more detailed process is being followed as part of the Historic Structures Management Plan. The Historic Structures Management Plan outlines a formal process to control and minimize potential vibration impact and will include determining an APE, Project Stakeholder review of the APE, inventorying buildings within the APE, developing a Special Provision for the contractor to conduct pre-construction structural surveys, refine acceptable vibration limits based on site-specific conditions, monitor vibration during construction and conduct post-construction structural surveys.

21. Ballast mats and/or resilient rail fasteners will be incorporated into the track design as a project enhancement if found to be feasible and effective enhancement measures.

### **Parks, Recreation and Conservation Land**

22. Following completion of the outfall installation, the Marble Works Riverfront Park will be returned to original condition.
23. At Marble Works Riverfront Park, the Village Green, and the Triangle Park area, signage will be installed during construction to guide park users towards alternate pedestrian routes to or around the parks.

### **Historic Resources**

24. The Historic Structures Management Plan will be implemented in accordance with the Section 106 Determination of Effect to protect historic structures within the MVHD from impacts associated with construction-related vibrations (see **Appendix G**). This plan includes pre-construction structure inventories and baseline vibration monitoring, construction vibration monitoring and reporting, and post-construction structure inventories and close out.
25. Some surplus ashlar blocks will be stockpiled for use in reconnecting Triangle Park and the Village Green, as well as on later Town projects with the approval of the VTrans Historic Preservation Officer.
26. Interpretive signage will be installed in the re-connected green space between Triangle Park and the Village Green to describe the importance of the railroad in the development of the Town of Middlebury. VTrans and/or local interested parties will plan the sign(s) and address maintenance and long-term care of permanent sign(s). The VTrans Historic Preservation Officer will review and approve final plans for the reconnected Village Green and the means of incorporating ashlar blocks.
27. Existing bridge railings will be replaced with crash-tested railing, the selection and design of which will be approved by the VTrans Historic Preservation Officer.
28. The final configuration of the ends of the tunnel will require review and approval of the design so that it is carried out in a manner consistent with the surrounding elements of the MVHD.

29. The VTrans Historic Preservation Officer will participate in design work related to the reconfiguration of Triangle Park. Plans for the park and environs will require written approval by the VTrans Historic Preservation Officer.
30. VTrans will ensure that the bridges are recorded prior to their demolition, alteration or relocation in accordance with HABS or HAER standards, for nationally significant properties, or, for other properties, the Photographic Documentation Standards for Historic Structures adopted by the SHPO.
31. VTrans will identify appropriate parties to receive salvaged architectural or engineering features. VTrans will ensure that the features are salvaged prior to demolition activities and properly stored and curated. When feasible, salvaged architectural features will be reused in other preservation projects. Surplus ashlar blocks will be stockpiled for later use on Town projects, with the approval of the VTrans Historic Preservation Officer.
32. Working in cooperation with the SHPO, VTrans will ensure that a qualified professional prepares a new National Register of Historic Places nomination for an updated MVHD.
33. The historic building at 127 Water Street will be included within the Historic Structures Management Plan.
34. During final design, the Project Team will evaluate the feasibility of incorporating ballast mats and/or resilient rail fasteners and their anticipated effectiveness to reduce vibrations. This will be omitted only if inclusion within the design was physically infeasible, or its efficacy is determined to be minimal
35. During final design, the appearance and locations of the new or replaced utility cabinets will be reviewed to minimize their potential effects on the surrounding historic district.

### **Archaeological Resources**

36. Archaeological monitoring will be conducted to document any structural features that become exposed during construction that may be associated with the properties contributing to the MVHD and the historic Rutland Railroad. These features will be described and photographed.

37. The Project will adhere to the requirements of Section 4(I) of the VTrans *Manual of Standards and Guidelines* regarding Discovery of Archaeological Sites During Project Construction. The Town will ensure that the entity responsible for construction is familiar with the content and requirements of Section 4(I) and Section 4(J) Treatment of Human Remains.
38. The construction footprint for the stormwater improvements in the Village Green will be minimized to the extent feasible.
39. Temporary protective fencing will be placed along the western side limits of the access to protect archaeologically sensitive areas west of the existing pedestrian path.
40. There will be no impacts to the area west of the pedestrian path. This area will remain off limits during construction.
41. A qualified archaeologist will monitor the excavation of the launch pit and document any structural features that become exposed that may be related to the cotton mill or other previous properties. These features will be described and photographed.

### **Acquisitions / ROW**

42. VTrans will ensure that:
  - (1) the acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and
  - (2) relocation resources are available to all residential and business relocates without discrimination.
43. The VTrans ROW Section will oversee and execute all ROW procedures including development of plans and titles, assessment/appraisal, negotiation, and administrative support for any condemnation proceedings that might be required. Accordingly, the ROW impacts are considered to be minor and adverse.

### **Social and Economic Considerations**

44. Public access to downtown businesses will be maintained during through the implementation of contractual Special Provisions to be required of the construction contractor. The Special Provisions section of the State's contract with the construction contractor will include language encouraging the

contractor to coordinate with community stakeholders, business owners, and event organizers to reduce construction-related impacts where feasible. This may include the implementation of traffic control measures, coordinated hours of operation, and identifying local events to be avoided.

45. To facilitate access to the downtown core during construction of the Proposed Action, pedestrian, vehicular, and parking detours and wayfinding signage will remain clearly signed for the duration of the construction effort.
46. An accessibility plan will be developed to include shuttle buses to and from alternative parking locations to maintain community and business operations during construction.
47. Other communities where downtown infrastructure construction projects have occurred in the recent past will be consulted to gather information on potential strategies to mitigate effects on local businesses, services, and residences.
48. VTrans will continue with direct and coordinated stakeholder engagement, including working group discussions. Given that the most disruption to the downtown (the road closures) will not occur until the third construction season, there is sufficient time for partnerships to be established and for effective mitigation strategies to be conceptualized, refined, and come to fruition.
49. The Town of Middlebury hired a Community Liaison, Middlebury resident Jim Gish, to aid in communication between VTrans, VHB, and Town officials and residents. Also in 2016, Jill Barrett of Fitzgerald & Halliday, Inc. (FHI) was hired as the Public Outreach Coordinator. These representatives will continue to provide services through construction to communicate with all involved stakeholders. In addition, specific approaches have been and will continue to be identified to make the public aware of Project activities, including pre-construction planning and while construction is underway.
50. The Middlebury Selectboard is considering the possibility of using the Town's Revolving Loan Fund to provide working capital loans for downtown businesses that may be impacted by construction of the Proposed Action, and the Town's Downtown District Improvement Commission has earmarked funds for marketing the downtown during construction. The Town will actively research sources of grants to support downtown life during the Project.

51. The Town's effort to mitigate construction-related impacts on businesses will focus in part on awareness and incentive campaigns to inform the public that downtown Middlebury is open for business and will include special events to encourage people to "come downtown."
52. Neighbors Together, a community action group formed in 2015, will work with Town officials, business owners, and community leaders to develop strategies to promote the downtown and to support local businesses and institutions during the Proposed Action. Neighbors Together includes representatives of the Selectboard, Addison County Chamber of Commerce, Better Middlebury Partnership, Middlebury College, Town Planning Commission, Town Hall Theater, and FHI. Town officials plan to review construction mitigation approaches implemented by other towns and cities and meet with Barre community leaders who developed the outreach campaign associated with the Barre Big Dig project in order to learn from their experience.

### **Utilities and Emergency Services**

53. Areas disturbed during the construction of said waterline and sewer line upgrades will be only temporarily impacted and will be returned to pre-construction condition at the completion of construction.
54. Reasonable efforts will be made to minimize disruption of water and sewer service to municipal water and sewer customers.
55. Upgrades to electric and telecommunication utilities will be completed by certified personnel from the appropriate utility company and will be completed according to OSHA regulations.
56. The temporary impact on the ability of emergency services to respond to incidents in and around the Project Area due to the ten-week road closure and detours will be addressed during the construction, potentially including providing the fire department, police, and other emergency services with construction drawings that detail the construction zone, detour routes, temporary access roads, and traffic control plans and inviting these parties to participate in pre-construction meetings. Alternate access will be provided during construction for emergency vehicles at the Battell Block parking area.
57. Responses to potential spills of OHM during construction will be performed in accordance with the ERP and overseen by the Environmental Manager. Additional safety measures to mitigate emergencies during construction will include railway flaggers as required by VTR, pre-construction and ongoing

tailboard safety meetings, and notification of an on-call Environmental Spill Contractor as determined by the Environmental Manager.

58. VTrans and VTR will work with the Town in amending the LEOP to include details associated with the built Project to ensure VTR operations and existing protocols are considered. The LEOP will be amendment in coordination with the Middlebury Fire Department to include management of any spills of oil or hazardous material which may occur within close proximity to the stormwater system.

## **Hazardous Materials**

59. Soil and other contaminated materials to be disturbed within the Study Area during construction will be properly handled and/or disposed of in accordance with a CAP and HASP. An Environmental Manager will be on-site for construction observation during all days when soil and other contaminated materials are being handled or disturbed.

## **Visual and Aesthetic Resources**

60. A number of mitigation measures would offset adverse visual and aesthetic effects of the Proposed Action:
  - a. a restoration plan would be developed for that portion of the riparian corridor cleared for construction of the Proposed Action;
  - b. the public would be invited to provide input on the design and landscaping of the reestablished Village Green, promoting a sense of community cohesion and allowing for aesthetic preferences to be recognized and incorporated;
  - c. the installation of interpretive signage on the Village Green will enhance the public understanding and appreciation of Middlebury's history and the buildings fronting the Village Green (see Section 3.12.4.1);
  - d. The VTrans Historic Preservation Officer must review and approve the design of the tunnel ends to ensure compatibility with the character of the MVHD (see Section 3.12.4.2);
  - e. overhead utilities entering the Village Green south of St. Stephen's Church would be undergrounded, an action that is consistent with the Town Plan, which notes that "Important vistas within the village are marred by the location of utility poles and lines."